South County Airport Master Plan Report

County of Santa Clara
San Martin, California

July 2006

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South County Airport Master Plan Report

Prepared
for the
County of Santa Clara

Prepared by

MEAD & HUNT

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3D Visions

July 2006

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Chapter 1

Background and Inventory

1

Background and Inventory

SOUTH COUNTY AIRPORT

Location and Environs

South County Airport is located within the unincorporated community of San Martin in Santa Clara County (Figure 1A). The Airport is located one mile east of the community's downtown area. At an elevation of 281 feet Mean Sea Level (MSL), the Airport lies on the flat Santa Clara Valley floor, which runs through the middle of the County. The Santa Cruz Mountains bound the Airport to the west and rise to nearly 3,500 feet MSL.

The Airport is bounded by U.S. Highway 101 to the east, San Martin Avenue to the north and Murphy Avenue to the west. A mixture of residential, commercial, and industrial uses surrounded the Airport on all sides.

The Airport's general aviation terminal is situated off Murphy Avenue. Automobile access to South County Airport is via U.S. Highway 101, San Martin Avenue and Murphy Avenue. Highway 101 connects the San Martin area to San Francisco to the north and Los Angeles to the south.

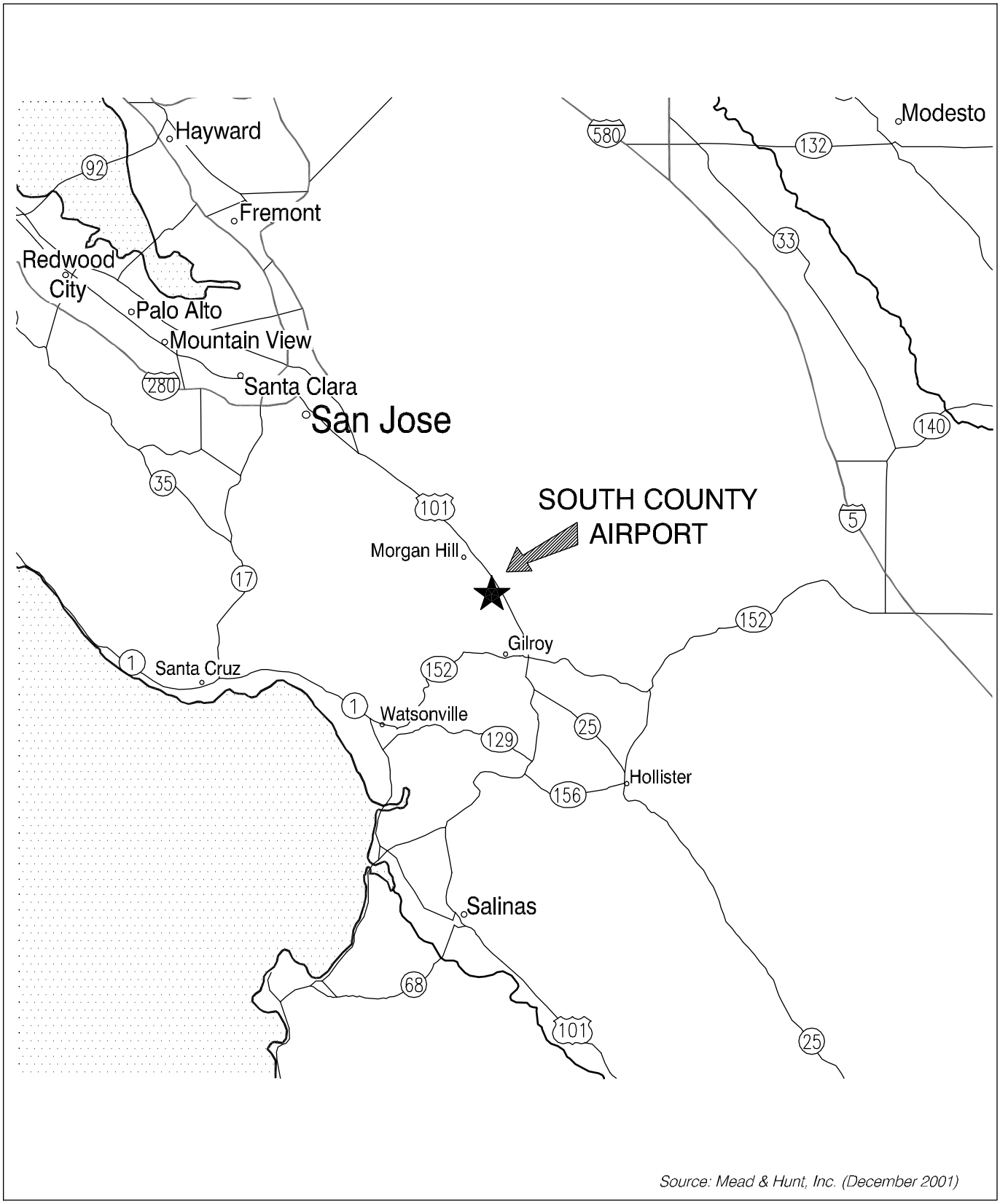


Figure 1A

Location Map

South County Airport

History

South County Airport opened in 1972. The Airport was constructed in what was a relatively rural area of south Santa Clara County. The of demand (parking and operational) from northern and central Santa Clara County.

Facilities

South County Airport is owned in fee by the County of Santa Clara. The day-to-day operation and management of the Airport is the responsibility of the County's Roads and Airports Department. Policy decisions affecting the Airport are made by the five-member Board of Supervisors. The Santa Clara County Airports Commission serves in an advisory capacity to the Board of Supervisors and staff on matters involving County-managed airports.

The Airport encompasses 179 acres and consists of a single runway and two parallel taxiways on either side of the runway. A large building area, containing nearly all of the airport buildings, is located west of Runway 14-32. A full-length apron edge taxiway serves the building area.

Runway 14-32 is 3,100 feet in length and 75 feet wide. It is asphalt paved with basic markings. The surface is rated at 12,500 pounds for aircraft with main landing gear in a single-wheel configuration. Runway 14-32 is a nonprecision runway with a GPS straight-in instrument approach to Runway 32. The runway is supported by a Medium-Intensity Runway Lighting System (MIRL). To facilitate landing operations, a two-box Precision Approach Path Indicator (PAPI) with a 4.0° visual glide slope is located to the left side of Runway 14-32.

South County Airport's principal building area is located west Runway 14-32 and backs to Murphy Avenue. Ninety tiedown spaces are located on the main apron positioned west of Runway 32. Several fixed based operator buildings, hangars (e.g., T-hangars and portable hangars), and a tiedown apron are located in the northern portion of the building area, west of Runway 14. A mixture of box hangars and T-hangars (totaling 100 units) were recently constructed in the central section of the building area. A summary of the facilities is presented in Table 1A.

MAJOR FEATURES

Property

- 179 acres owned in fee by the County of Santa Clara

Airfield

- Elevation: 281 feet MSL (estimated)
- Runway 14-32:
  - 3,100 feet long, 75 feet wide
  - Pilot-controlled MIRL
  - Glide Slope Indicator (PAPI-4.0°) on left side of runway
  - Asphalt-paved with basic markings
  - Beacon; lighted wind indicator; segmented circle

Building Area

- West side of Runway 14-32
- Aircraft parking:
  - 90 marked tiedown positions on main apron
  - 33 unmarked FBO tiedown spaces
  - 100 hangars (FBO, box, and T-hangars)

AIR TRAFFIC PROCEDURES

Traffic Patterns

- Right traffic pattern to Runway 32
- Pattern altitude: 1,281 feet MSL (1,000 feet AGL)

Instrument Approaches/Navaids

- GPS to Runway 32: straight-in; 1¼ mile visibility; 1,320 feet MSL minimum descent height
- San Jose VOR/DME: 114.10 MHz
- Salinas VORTAC: 117.30 MHz

Communications

- UNICOM/CTAF: 122.7 MHz

MANAGEMENT AND SERVICES

Management

- Management and maintenance provided by County of Santa Clara, Roads and Airports Department

Fixed Base Operations

- Fuel service: 100LL, Jet Fuel
- FBO services:
  - Flight instruction
  - Aircraft rental, sales and charter
  - Aircraft maintenance
  - Aircraft storage

ENVIRONS

Topography

- Airport lies on flat Santa Clara Valley floor
- Relatively level terrain close to Airport
- Rising terrain to the west and east, exceeding 4,000 feet and 2,000 feet, respectively

Access

- Primary access is Murphy Avenue via US Highway 101 and San Martin Avenue

Jurisdiction

- Santa Clara County: Airport is located in the unincorporated portion of County

Nearby Land Uses

- All quadrants: principally a mixture of residential and agricultural sites scattered throughout countryside

Source: Data compiled by Shutt Moen Associates (August 2001)

Table 1A

Airport Profile

South County Airport

The full range of general aviation services is available from one fixed base operator to pilots and aircraft. The available services are summarized in Table 1B.

AERONAUTICAL SETTING

Area Airports

Six public-use airports and two private-use airports are located within 25 nautical miles of South County Airport. Of these airports, Frazier Lake is the nearest. Watsonville Airport is the nearest airport with a hard surfaced runway. Table 1C summarizes selected features of each of these airports and Figure 1B shows their location.

Area Airspace

Federal regulations define various categories of airspace with distinct operating requirements for each type. The airspace in the vicinity of South County Airport is relatively simple. South County Airport is located in Class G airspace. The Class E airspace that overlies the airport has a floor of 700 feet AGL. The Class B airspace associated with San Francisco International Airports and the San Jose Class C airspace start about 17 and 7 nautical miles to the northwest, respectively. Air traffic control clearance is required for all aircraft intending to operate in the Class B airspace. The airspace classifications are illustrated in Figure 1C.

One low-altitude Victor Airways passes near South County Airport: V-485 immediately west of the Airport. This airway provides a defined route that can be flown under instrument conditions. Pilots using this airway normally do not interact with air traffic utilizing South County Airport.

COMMUNITY PROFILE

Santa Clara County is bounded by San Mateo County to the northwest; Alameda County to the north; Stanislaus County to the east; Merced County to the southeast; San Benito County to the south; Monterey County to the southwest; and Santa Cruz County to the west. The County encompasses nearly 826.4 thousand acres.

The unincorporated community of San Martin is located in the southern portion of Santa Clara County. San Martin is situated 5 miles south of the City of Morgan Hill and 6 miles north of the City of Gilroy.

Fixed Base Operations (Aviation-Related Services)

	Fuel Sales			Flight Instruction		Aircraft Rental		Aircraft Parts & Maintenance					Aircraft Storage			Miscellaneous			
Name	**100/100LL**	**Jet-A**	**80**	**Fixed Wing**	**Sailplane**	**Fixed Wing**	**Sailplane**	**Engine**	**Airframe**	**Avionics**	**Sailplane**	**Other**	**Based Tiedowns**	**Hangars**	**Transient Ramp**	**Pilots' Supplies**	**Charter (FAR 135)**	**Aircraft Sales**	**Other**
2 Genes Aviation, Inc.	✓	✓		✓		✓		✓	✓				✓	✓		✓	✓	✓	

Source: Data compiled by Mead & Hunt, Inc. (August 2003)

Table 1B

Airport Tenants

South County Airport

Airport	Owner	Location: Community/County	Location: Distance[1]/Direction	Based Aircraft	Facilities: Number of Runways	Facilities: Longest Runway (ft.)	Facilities: Surface[2]	Facilities: Lighted-Intensity[3]	Facilities: Approach Visibility[4]	Facilities: Control Tower	Services: Airline Service	Services: AvGas	Services: Jet Fuel	Services: Maintenance	Services: Automobile Rentals[5]	Services: Food
Area Airports																
South County	**Public**	**San Martin/ Santa Clara**	–	**85**	**1**	**3,100**	**Asph**	**M**	**1¼**	–	–	✔	✔	✔	–	–
Reid-Hillview	Public	San Jose/ Santa Clara	20 NW	521	2	3,101	Asph	M	VFR	✔	–	✔	–	✔	✔	–
Salinas	Public	Salinas/ Monterey	25S	224	3	6,000	Asph	M	½	✔	–	✔	✔	✔	✔	✔
Hollister	Public	Hollister/ San Benito	15 SE	145	2	6,350	Asph	M	1	–	–	✔	✔	✔	✔	✔
Watsonville	Public	Watsonville/ Santa Cruz	13 SW	331	2	4,501	Asph	M	1	–	–	✔	✔	✔	✔	✔
San Jose International	Public	San Jose/ Santa Clara	24 NW	417	3	10,200	Asph	H	½	✔	✔	✔	✔	✔	✔	✔
Frazier Lake Airpark	Private	Hollister/ San Benito	11 SE	88	2	2,500	Turf/ Water				Private Use					
Christensen Ranch	Private	Hollister/ San Benito	18 SE	–	1	3,000	Asph				Private Use					
Monterey Bay Academy	Private	Watsonville/ Santa Cruz	16 SW	–	1	2,200	Dirt				Private Use					

[1] Distance limited to 25 nautical miles from South County Airport

[2] Asph=asphalt

[3] L=low; M=medium; H=high

[4] Statute mile

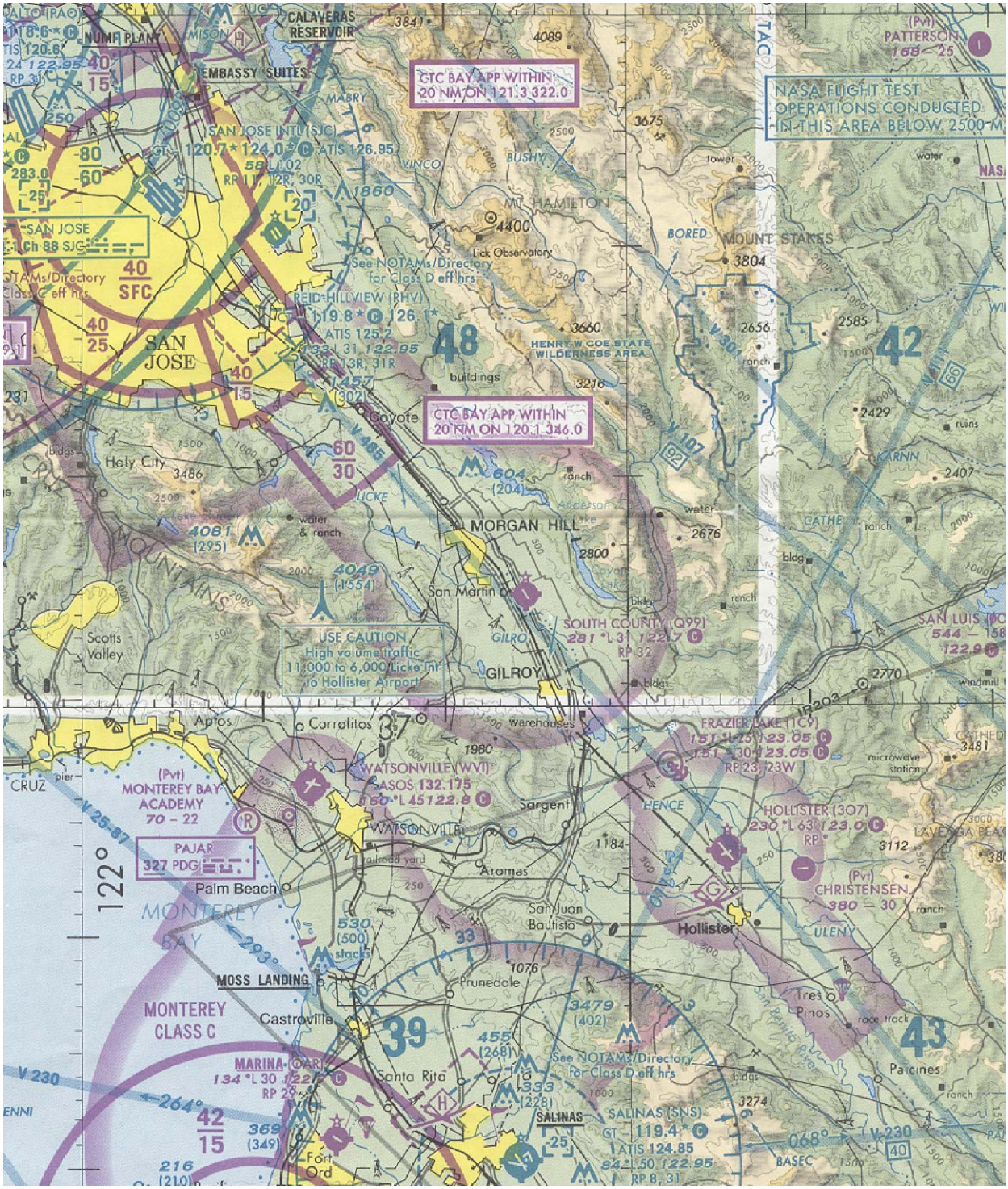
[5] On-field (outlet)

Source: Data compiled by Mead & Hunt, Inc. (August 2005)

Table 1C

Area Airports

South County Airport



Source: San Francisco Sectional Aeronautical Chart (March 2001)

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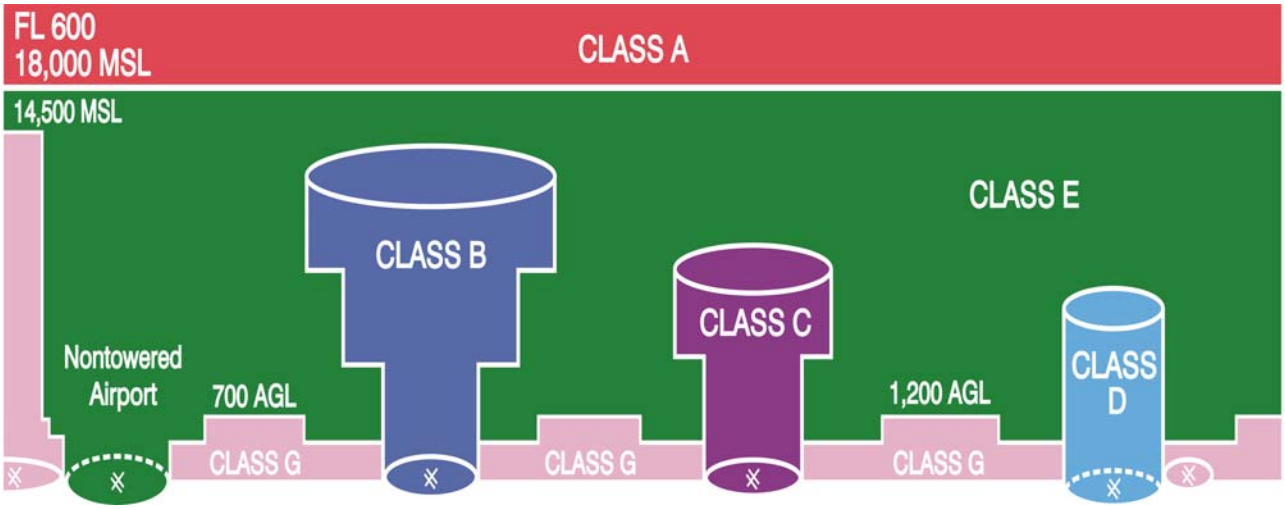
Figure 1B

Area Airports

South County Airport



AGL – above ground level
MSL – mean sea level
FL – flight level

Airspace Classes	Communications	Entry Requirements	Separation	Special VFR in Surface Area
A	Required	ATC clearance	All	N/A
B	Required	ATC clearance	All	Yes
C	Required	Two-way communications prior to entry	VFR/IFR	Yes
D	Required	Two-way communications prior to entry	Runway operations	Yes
E	Not required for VFR	None for VFR	None for VFR	Yes
G	Not required	None	None	N/A

Figure 1C

Airspace Classes

The City of Gilroy has grown by 28 percent over the last decade from 31,487 residents in 1990 to 40,150 residents in 2000. Comparatively, the City of Morgan Hill has realized a 38 percent growth in population over the same 10-year period, from 23,928 in 1990 to 33,100 in 2000. The County has grown by 16 percent and has a population of just over 1.7 million as of January 2000. Additional information is provided in Table 1D.

The County's local economy is supported predominantly by manufacturing, trade, and service-oriented industries. The City of Morgan Hill, located south of Silicon Valley, is well known for its manufacturing and research firms. The City of Gilroy's economy has historically been based on agricultural products and processing. Today, agricultural industries continue to contribute to the area's local economy. In fact, the City of Gilroy is often regarded as the "Garlic Capital of the World."

PREVIOUS AIRPORT PLANS AND STUDIES

South County Airport was one of three County-owned or leased airports addressed in the *Santa Clara County Airports Master Plan* (1982). The *Master Plan* examined the feasibility of providing new development (e.g., additional aircraft parking, FBO sites, etc.) at the Airport while providing maximum efficiency and convenience.

GEOGRAPHY

Location

- Unincorporated community of San Martin is located in Santa Clara County, California
- Nearby cities within 5 miles: Gilroy (south) and Morgan Hill (north)

Topography

- Santa Cruz Mountains located west, rise to nearly 2,200 feet MSL

SURFACE TRANSPORTATION

Major Highways

- US Highway 101 extends north-south

Public Transportation

- CAL Train
- VTA Local Bus
- VTA Express

Rental Car Service

- Enterprise

Taxi Service

- Yellow Cab
- South County

POPULATION AND ECONOMY

Current/Historical Population

	1990	*1995*	*2000*
Santa Clara County:	1,528,600	1,597,400	1,709,500
City of Gilroy:	31,487	NA	40,150
City of Morgan Hill:	23,928	NA	33,100
Community of San Martin:	--data not available--		

(Source: California Department of Finance and Santa Clara County Government Website)

Projected Population

	2010	*2015*	*2020*
Santa Clara County:	1,987,800	2,063,000	2,163,000
Community of San Martin:	--data not available--		

(Source: Association of Bay Area Governments)

Basis of Economy

- Industry groups with greatest percentage of employment in Santa Clara County:
  - Service 36%
  - Manufacturing 25%
  - Trade 19%

(Source: California Department of Finance)

CLIMATE

Temperatures

	Avg. High	*Avg. Low*
Hottest month (July):	88.2°F	53.7°F
Coldest month (January):	60.1°F	36.4°F

Precipitation

- Average annual rainfall in Gilroy: 20.97 inches

(Source: Western Regional Climatic Center*)

Winds

- Prevailing winds from the northwest

**** Weather data provided on this table is for the City of Gilroy, which is located approximately 5 miles south of San Martin.***

Source: Data compiled by Shutt Moen Associates (August 2001)

Table 1D

Community Profile

South County Airport

Chapter 2

Airport Role and Activity Forecasts

2

Airport Role and Activity Forecasts

INTRODUCTION

This version of the Airport Roles and Forecasts Discussion Paper reflects the action taken by the Santa Clara Board of Supervisors on November 19, 2002.

A key purpose of an airport master plan is to define the role of the airport. The airport's adopted role in turn drives its basing capacity, which is the type and number of aircraft that the airport will be developed to accommodate. Once a role is defined, then the facilities necessary to implement the role can be specified.

The term "role" is used in two different contexts. In a strategic context, it means the function and purpose of the airport with respect to the overall transportation network (e.g., whether the airport will be geared to small piston propeller aircraft, larger turboprops, or even business jets). In another context, it means the function of each airport with respect to accommodating growth in the number of based general aviation aircraft.

The process by which we may determine the airports' roles is outlined as follows:

- Forecast the overall demand for the airports (in terms of the number of based aircraft) over the 20-year time horizon of the Master Plan.
- Determine the hypothetical maximum basing capacity of each airport.
- Compare the forecasted overall demand to the total hypothetical maximum basing capacity of the airports.
- Identify policy alternatives available with respect to the role of each airport (i.e., the extent to which a particular airport should be developed to accommodate the forecasted demand).

- Select a role for each airport based on the Guiding Principles adopted at the beginning of the master planning process.

Airport Facility Plans based on the adopted role for each airport will be developed as part of subsequent phases of the master planning process. Appropriate environmental documentation will also be developed in accordance with the California Environmental Quality Act (CEQA).

DEMAND FORECAST

An aggregate forecast of based aircraft was prepared for the four airports in Santa Clara County: Palo Alto, Reid-Hillview, South County and San Jose International. The specific methodology is presented below.

Historical Trends – Based Aircraft

Historical data for Reid-Hillview, Palo Alto, and South County airports was taken from Santa Clara County records. Data for San Jose International Airport was taken from City of San Jose and Federal Aviation Administration records.

It is appropriate to start a discussion of forecasts with an examination of the historical record. Figure 2-1 presents the annual count of based aircraft within Santa Clara County, beginning in 1980. The early 1980s reflect the small residual growth following the boom years of the 1970s. Through the middle 1980s there was little change in the number of based aircraft, merely minor year-to-year variations. The total number of based aircraft remained slightly above 2,000. Beginning in about 1988 the number of based aircraft within the county started a slow decline. This general trend continued through the mid to late 1990s, although there were short periods of increase. The lowest recent total occurred in 1999 when the number of based aircraft dropped to 1,467. The last three years have seen an increase in based aircraft. In February 2002, the number of based aircraft countywide had increased to 1,580. Anecdotal information suggests that these may be the initial steps in a reversal of a decade-long decline. However, the current economic decline may slow the resurgence.

Historical Trends – Aircraft Operations

Operation (definition): Either a landing or a takeoff. A touch and go, a common training operation that involves a landing and an immediate takeoff without stopping, counts as two operations.

Data on aircraft operations for the three airports is readily available for all three airports back to 1978 and for Reid-Hillview back to 1968. The operations counts for Reid-Hillview and Palo Alto Airports are based upon counts made by the air traffic control tower staff. South County Airport data is based upon estimates and should be considered to be order-of-magnitude only.

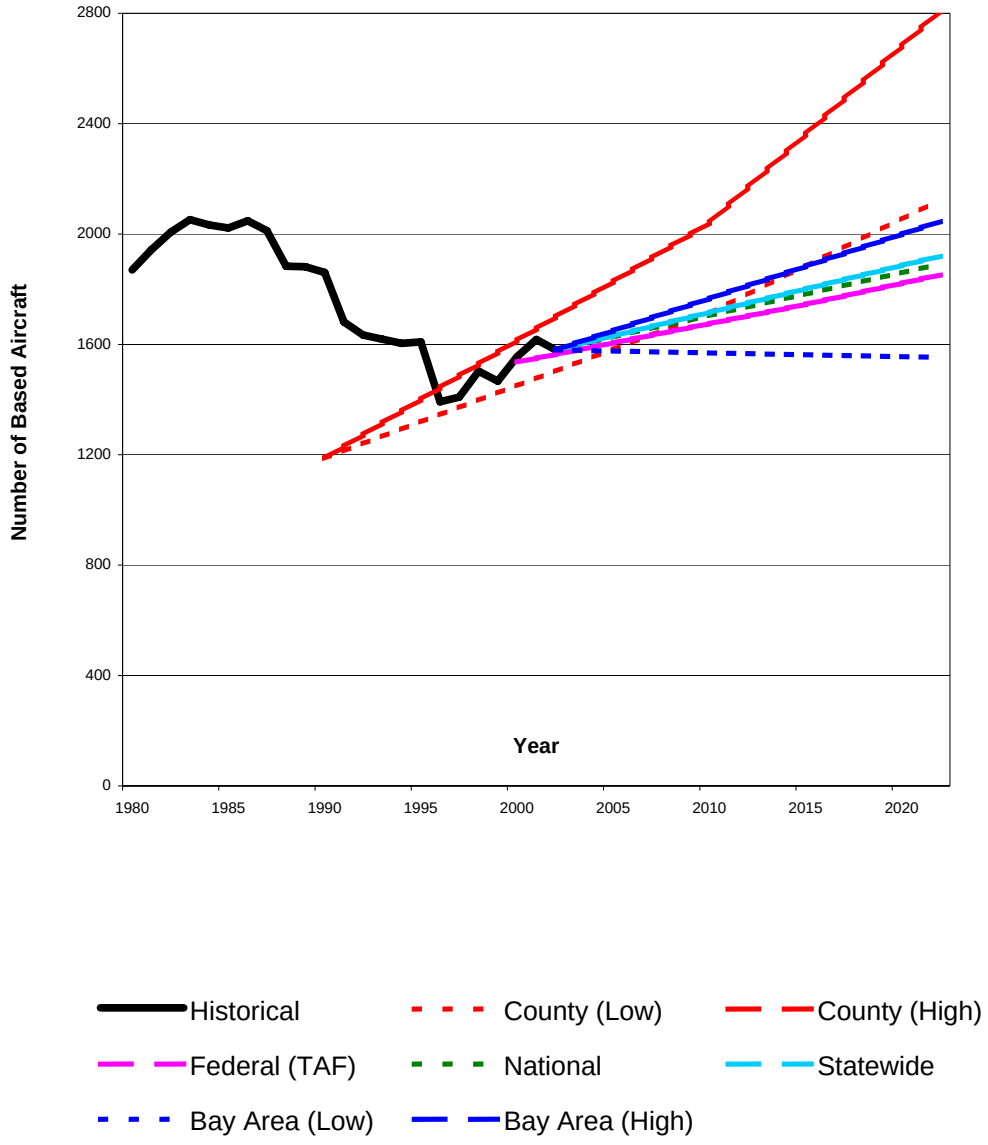


Figure 2A

Based Aircraft Demand Forecast

Santa Clara County

Some of the recent estimates for South County Airport are based upon sample counts made by Caltrans' Division of Aeronautics staff using an acoustical counter. These recent estimates can be assumed to be significantly more accurate than prior estimates.

Reid-Hillview Trends

Aircraft operations at Reid-Hillview grew fairly consistently through the late 1960s and peaked in 1978, with almost 400,000 annual operations (398,640). A very rapid decline followed with a reduction by nearly two-thirds to 137,019 operations in 1982. This was the lowest volume of operations in over 30 years. A second cycle of growth occurred through the 1980s, reaching a plateau of around 200,000 annual operations. Operations again declined, reaching its next low in 1995 with 151,916 operations. Since that time, operations have grown slightly each year. The total for the most recent year (2001) was 235,213.

Palo Alto Trends

The pattern of historical operations at Palo Alto Airport shows markedly less variation than at Reid-Hillview. There was a significant decline in operations from 1978 through 1982 (that paralleled that at Reid-Hillview): 252,425 operations to 144,223 operations. However, the percentage change was much less (44% versus 66%) than at Reid-Hillview. Following that low point, operations grew, reaching its next peak in 1990 with 240,496 operations. Again paralleling the experience at Reid-Hillview, operations declined through the early 1990s reaching its next low in 1995 with 184,285. Since that time, annual operations have hovered around the 200,000 level, with year-to-year variations as high as 10%. In 2001, the annual count was 209,709.

South County Trends

The lack of reliable data sharply limits the ability to discern trends at South County Airport. The most that can be said is that in recent years the number of operations has remained around 56,000 annual operations.

Existing Demand Forecasts

Both the Federal Aviation Administration (FAA) and Caltrans Division of Aeronautics have current forecasts of based aircraft for the four airports located in Santa Clara County. Additionally, it is appropriate to consider the FAA's national forecast for general aviation aircraft and Caltrans' statewide forecast. FAA data are

taken from the *National Plan for Integrated Airport Systems* (NPIAS), the on-line Terminal Area Forecasts, and the *Aerospace Forecasts* report. Caltrans data are taken from its *California Aviation System Plan* (CASP). Specifically, seven existing forecasts are evaluated in the paragraphs that follow:

1. NPIAS Terminal Area Forecast for airports in Santa Clara County
2. NPIAS national growth rate
3. CASP San Francisco Bay Area high forecast
4. CASP San Francisco Bay Area low forecast
5. CASP high forecast for airports in Santa Clara County
6. CASP low forecast for airports in Santa Clara County
7. CASP statewide growth rate

The Metropolitan Transportation Commission prepared forecasts of general aviation based aircraft and operations in its *Regional Airport System Plan Update*. The document provided forecasts through the year 2010. Although this document was released in 1994, it relies upon statewide data from 1988 and earlier, and national data from 1990 and earlier. This data is judged to be too old to reflect current trends and is not used in this analysis.

The FAA annually prepares Terminal Area Forecasts for all airports listed in the *National Plan of Integrated Airport Systems*. The year 2005 Terminal Area Forecasts for the four airports in Santa Clara County predict an increase in the number of based aircraft for the four airports to 1,818 by the year 2020. If this growth rate continues, the total for the four airports would reach 1854 by 2022. This growth rate is somewhat less than FAA's forecast national growth rate of about 0.9% annually. If the national growth rate occurred, the total number of aircraft based in Santa Clara County would grow to 1,782 by 2015 and 1,890 by 2022.

Caltrans' *California Aviation System Plan* (CASP) contains statewide, regional and individual airport forecasts. The most recent forecasts were published in 1999. Forecasts were prepared through the year 2010. The statewide CASP forecast was for 0.978% annual growth. The high forecast for the San Francisco Bay Area was 1.3% annual growth and the low forecast was –0.0847% annual growth. By comparison, the four airports in Santa Clara County were forecast to grow by 14% under the low forecast and 20% under the high forecast. These forecasts were extended to the year 2022, using the following methodology:

- The forecast statewide and Bay Area growth rates were applied to the actual current (2002) number of based aircraft

- The 2010 forecasts for the individual airports were extended by applying the growth rates out to 2022.

The results of this effort are forecasts for the year 2022 as follows:

2022 Forecast	Number of Based Aircraft
CASP Santa Clara County – high forecast	2,290
CASP San Francisco Bay Area - high forecast	2,046
CASP statewide growth rate	1,920
FAA – national growth rate	1,890
FAA Terminal Area Forecast – Santa Clara County	1,854
CASP Santa Clara County – low forecast	1,725
CASP San Francisco Bay Area – low forecast	1,553

Countywide Demand Forecast

Change in the number of based aircraft at any one airport is a function of newly manufactured aircraft entering the system and migration of existing aircraft between airports. The first factor is affected by the state of the economy, economic factors within the aviation industry, regulatory constraints, etc. Migration of aircraft is shaped indirectly by the larger economic factors that affect the aircraft owners. However, the single largest short-term factor currently affecting migration of aircraft within Santa Clara County is the availability of hangars. There appears to be a very large, unmet demand for hangars throughout the San Francisco Bay Area and aircraft owners are willing to drive longer distances to where they base their aircraft if they are able to obtain a hangar. In the short run, whichever airports are the first to build hangars can expect to attract aircraft from surrounding areas. In the long term, aircraft owners will try to base as close to their home (or office) as possible, assuming that cost, facilities, etc. are equal. However, given the very slow turnover in hangars, it is likely that the distribution of aircraft will never reach equilibrium where all aircraft are based at the airport most convenient to the owner.

It is appropriate to first eliminate from consideration those forecasts that do not appear to be plausible or are otherwise inappropriate. In examining the various existing forecasts, the CASP high forecast for the four airports in Santa Clara County projects the highest number of based aircraft (2,290) in the year 2022, which equates to a growth rate of about 36 aircraft per year. Over the last

three years, the number of aircraft based in Santa Clara County has increased an average of 26 aircraft per year. Therefore, the CASP high forecast for Santa Clara County is not supported by current trends and was removed from further consideration.

The CASP low forecast for the San Francisco Bay Area has a negative growth rate. In light of the positive growth rate over the last several years, this forecast was also judged inappropriate and removed from further consideration.

The FAA TAF forecasts for San Jose International and South County Airports indicate no change from current totals. The TAF forecasts for Reid-Hillview and Palo Alto both show increases over present levels. However, the most recent (2003) TAF totals for all of these airports differ significantly from the actual counts. The TAF for San Jose indicates 417 based aircraft, while only 279 are actually present. The 2003 TAF count for the other three airports were lower than actual:

- Reid-Hillview: TAF = 567; actual = 687
- Palo Alto: TAF = 458; actual = 524
- South County: TAF 70, actual = 90

Given that the most recent TAF counts for the three county-operated airports are lower than actual, this may result in TAF forecasts that understate growth trends.

In this forecast it is assumed that Moffett Federal Airfield will not serve as a base for civilian, general aviation aircraft during the 20-year span of this plan. If Moffett becomes available for general aviation aircraft, it could reduce demand at other nearby airports.

The remaining CASP forecasts, if extended to the year 2022, project between 1,725 and 2,046-based aircraft. If the current growth rate of 26 aircraft per year continued for 20 years, about 2,100 aircraft would be based in the county by 2022. However, it is believed that the current growth rate will not be sustained for 20 years. Therefore, for the purposes of this master plan, a figure between the CASP statewide growth-rate forecast and the CASP high forecast for Bay Area airports was selected. This growth rate is equivalent to an average increase of 19 aircraft per year or 1,960 based aircraft in the year 2022. This recommended forecast is 5.7% higher than the TAF forecasts for the four airports. Given that the most recent TAF count is 4.5% lower than actual, this slightly higher number can be considered consistent with the trend identified in the TAF.

HYPOTHETICAL MAXIMUM BASING CAPACITY

Determining the extent to which each airport will be developed to meet forecasted demand first requires examination of the physical constraints that affect the ability of each airport to accommodate additional based aircraft. Once the hypothetical maximum basing capacity of each airport has been established we will be in a position to compare the aggregate maximum basing capacity for the three airports against the total forecasted demand. This comparison provides the foundation for identifying policy alternatives available to the Board of Supervisors regarding the role of each airport with respect to meeting future demand. It is important to note that an airport's ability to physically accommodate additional aircraft is only one constraint affecting its ultimate basing capacity and that the hypothetical maximum basing capacity does not represent a specific plan or policy recommendation.

The following assumptions were made solely for the purpose of determining hypothetical maximum basing capacity:

- No additional real property acquisition at RHV and PAO is feasible (i.e., development would be limited to the existing airport property).
- No net change in basing capacity will occur on the airport property already developed, including the 12 Fixed Base Operator (FBO) leaseholds.
- All developable real property at RHV and PAO would be used for aircraft storage.

The additional basing capacity figures discussed below are approximate and based on preliminary site layouts and standard airport design parameters with respect to clearances, setbacks etc. The actual number of additional aircraft that could be accommodated may vary slightly.

Palo Alto Airport

Palo Alto Airport's current role is to serve light, single- and twin-engine piston aircraft. The airport also sees limited use by turboprop aircraft. The airport currently has 524-based aircraft with a capacity to accommodate up to 553 aircraft, including approximately 30 spaces needed by fixed base operators to accommodate long-term transient aircraft at the airport for maintenance and other purposes. For the purposes of this document, the 30 spaces used for long-term transient aircraft will be treated the same as spaces for permanently based aircraft in the calculation of basing capacity.

The airport is severely constrained. The presence of tidal waters near both ends of the runway makes it infeasible to lengthen the runway and only about eight acres at the south and southeast areas of the airport remain available for development. Approximately 60 aircraft storage hangars could be developed on the vacant areas, which would increase the airport's basing capacity from 553 to 613. Therefore, although there is limited potential for additional development, there is no potential to change the role of the airport to accommodate larger aircraft.

Reid-Hillview Airport

Reid-Hillview Airport's current role is to serve light, single- and twin-engine piston aircraft. The airport also sees limited use by turboprop aircraft and the smallest business jets. The airport currently has 687-based aircraft with sufficient existing capacity to accommodate a total of 726 aircraft.

The airport has 8 acres of undeveloped property in the southeast corner of the airport between the existing southernmost row of hangars and Tully Road. This property is adjacent to the existing taxiway and could accommodate an additional 167 aircraft. Total capacity for based aircraft would increase to 893.

Approximately 35 acres on the west side of the airport could accommodate an additional 136 aircraft if a new taxiway were constructed on the west side of Runway 31L/13R, bringing the hypothetical maximum basing capacity to 1,029 aircraft.

While it would be possible to extend the length of runway available for departures, it is infeasible to extend significantly the runway for landings. Therefore, it would not be possible to expand substantially the current role of the airport. The most that is physically possible is to use minor extensions to marginally increase the airport's ability to serve turboprops and small business jets.

South County Airport

South County Airport was established in the 1960s to serve as a:

- General Aviation airport to serve local users in southern Santa Clara County
- Reliever airport to serve the overflow of demand (parking and operational) from northern and central Santa Clara County

The Airport was originally envisioned as a dual-runway facility with capacity to base 550 aircraft, although the 1982 Airports Master

Plan recommended redefining the airport's role to a single-runway facility including "aircraft parking capacity commensurate with its single-runway airfield capacity." The 1982 Master Plan went on to describe how the airfield capacity could become the limiting factor with regard to the airport's basing capacity if the number of annual operations per based aircraft remained high. At 650 annual operations per aircraft, for example, only 300 or so aircraft could be based at the airport because of the throughput limitations of the single runway, even though the airport has the physical space to accommodate over 600 aircraft. At less than 650 annual operations per aircraft, basing capacity increases accordingly. This issue is discussed here because some feel that the 1982 Master Plan reduced the basing capacity at South County to 300 aircraft.

Santa Clara County is currently undertaking development of about 100 hangars at South County Airport. However, as these units do not currently exist, they are not included as existing capacity.

The airport currently serves light, single- and twin-engine piston aircraft; limited use by turboprop and the smallest business jet aircraft also occurs. The airport currently has 90-based aircraft and a total of 178 aircraft storage spaces, not including the hangars currently under design.

Among the three County airports, South County Airport is the only one without severe physical constraints on its future development. Two scenarios were developed to illustrate the range of development that could occur at the airport, one based on the existing airport property and one based on airport expansion.

South County – Existing Property

Under this development scenario the airport would retain its current property boundaries. Approximately 45 acres are available for future development within the existing airport footprint, 32 of which would be devoted to aircraft storage while 13 acres would be reserved for FBO leaseholds. This alternative would increase the based aircraft capacity by 519 to 697 aircraft, including approximately 444 aircraft in storage hangars and 75 aircraft on FBO leaseholds.

South County - Expansion

Under this development scenario, the 38-acre parcel adjacent to the southwest part of the airport would be acquired and Murphy Avenue would be realigned. Approximately 83 acres would be available for development. About 68 acres would be devoted to aircraft storage, including large box hangars for corporate aircraft. An additional 15 acres would be reserved for FBO leaseholds and, potentially, limited non-aviation use. This alternative would increase the based aircraft capacity by 794 to 972 aircraft. This in-

cludes an increase in 694 aircraft in storage hangars and 100 aircraft on FBO leaseholds. It is important to note that although the airport would be physically capable of accommodating 972 aircraft under this scenario, airfield capacity limitations in terms of the number of annual operations would most likely limit the maximum basing capacity to less than 972 aircraft.

Existing Basing Capacity vs. Maximum Basing Capacity

Airport	Existing Basing Capacity	Increase in Basing Capacity Possible	Maximum Basing Capacity
Palo Alto	553	60	613
Reid-Hillview	726	303	1029
South County	178	519-794	697-972
Totals	1457	882-1157	2339-2614

San Jose International Airport

San Jose International Airport currently has 279-based aircraft. The number of based aircraft has been declining in recent years due to elimination of hangars and tiedowns, increasing rental rates, and conversion of FBOs from flight schools to uses oriented towards business jet aircraft. The current SJC master plan adopted in 1997 forecast that the number of general aviation aircraft based at the airport would decline to 320 by 2010.

Since the current number of based aircraft has already fallen below the level forecast in the master plan, there is no source of official guidance on whether the number will decrease further and, if so, by how much. However, it is likely that the number of based aircraft will continue to decline even if the airport does not eliminate any additional publicly owned hangars or tiedowns. Fee increases, continued conversion of FBOs to uses oriented towards business jets and increased security measures are likely to encourage significant further relocation of smaller general aviation aircraft. For the purposes of evaluating demand at the airports operated by Santa Clara County, it will be assumed that the number of aircraft based at San Jose International will be reduced by an additional 100 aircraft by the year 2022. This would reduce the capacity at San Jose International to 179-based aircraft.

MEETING DEMAND – ALTERNATIVES

Earlier in this chapter, we forecasted the countywide demand for based aircraft to reach 1,960 by the year 2022. To fully meet this demand, the four public-use airports would need to provide aircraft storage facilities for 1,960 aircraft. Based upon the preceding analysis, San Jose International Airport (SJC) is forecast to have only 179 general aviation aircraft in the year 2022.

Since the number of general aviation aircraft based at SJC is driven in large part by the previously adopted Master Plan for that airport, we assume that the County has very limited ability to influence this number. This means that space for 1,781 aircraft will need to be provided at the three airports operated by Santa Clara County, if demand is to be met (1,960 – 179 = 1,781). Current capacity at the three airports is 1,457. Therefore, there will be a need for space for 324 additional aircraft if the demand is to be fully accommodated.

Since the preceding section established that the three County airports have the ability to accommodate within their existing boundaries up to 882 additional aircraft – over twice the forecasted growth in demand - some latitude exists regarding the extent to which each airport could be developed to accommodate the aggregate demand. In this section, alternatives to the current capacity and role are presented for each of the four airports in Santa Clara County.

GUIDING PRINCIPLES

On April 27, 1999, the Board of Supervisors adopted a set of principles to guide the master planning process. Discussion of these Guiding Principles is appropriate since they represent values to be applied to the available alternatives and will therefore influence to a great degree which alternatives are selected. The following summarizes the Guiding Principles:

- **Financial Self-Sufficiency**. The Airport Enterprise Fund should be self-sustaining without subsidy from the County General Fund. Revenue from fees and charges, state and federal grants and other sources should be sufficient to fund operating and maintenance costs, capital improvements and an appropriate level of reserves.

  The principle of financial self-sufficiency forges an inextricable link between the Master Plan and the Business Plan. Although the Master Plan focuses primarily on the role of each airport

and the subsequent capital improvements necessary to fulfill that role, the influence of these decisions on the Business Plan must be understood in order to properly coordinate the two Plans.

The Board may also wish to formally expand this principle to require that each airport maintain financial self-sufficiency to the maximum extent practicable.

- **Preserving the Quality of Life.** The safekeeping of the quality of life of residents who live near County-operated facilities is important.

  Since this issue is directly related to the number of operations, forecasting the number of operations for various levels of based aircraft is an integral part of the decision-making process.

- **Maintenance of Safety Zones**. Maintaining the integrity of our safety zones by discouraging the encroachment of incompatible land uses will maintain the safety of airport users as well as those persons who live or work nearby.

  Since we have determined that it is infeasible to expand either Palo Alto or Reid-Hillview beyond their current boundaries and the area surrounding both airports is already at its ultimate state of development, this issue will not be a factor in the selection of a role for each airport. However, the Master Plan will consider the potential acquisition of property to ensure adequate safety zones.

- **Meeting the Needs of the Aviation Community**. Considering the needs of the aviation community with respect to basing capacity and airport operational issues (including availability of on-airport services) is an integral part of the master planning process.

  This element of the master planning process is concerned primarily with meeting the forecasted need for basing capacity. The needs of the aviation community with respect to specific services offered at the airports (whether by the County or the FBOs) are the subject of future phases of the Master Plan.

RANGE OF ALTERNATIVES

The South County hangar project currently under design could in itself satisfy almost one-third of the forecasted growth in demand for based aircraft storage by providing about 100 of the 324 additional spaces needed to meet the 2022 forecasted demand of 1,781 spaces. Upon project completion, only 224 additional spaces would be required over the next 20 years to meet the forecasted demand.

The extent to which the basing capacity is increased at each airport – or not increased, as the case may be – is a policy decision of the Board of Supervisors. Fortunately, a wide range of alternatives is available to the Board. Three broad approaches are discussed below:

1. **Develop each airport based on its own demand**. This approach focuses on developing each individual airport based on the demand for basing capacity at that particular airport. Although the total forecasted growth in demand for based aircraft storage at the three County airports is 324, it is reasonable to assume that, absent constraints on basing capacity, demand for spaces at each individual airport would approximate the existing distribution of aircraft.

   However, we know that Palo Alto's basing capacity could be expanded by a maximum of 60 aircraft. Therefore, the forecasted growth in demand cannot occur with the same distribution pattern that currently exists, and the basing capacity of Reid-Hillview and South County combined would need to increase by 264 to meet the forecasted demand (60+264=324). If we assume that aircraft owners unable to base their aircraft at Palo Alto would look first to Reid-Hillview as an alternative home base and then to South County, we could expect the Year 2022 distribution of based aircraft shown in the following table:

Table 2A: Alternative 1

Develop Each Airport Based on Its Own Demand

Airport	Existing Basing Capacity	Change in Basing Capacity	Year 2022 Number of Based Aircraft	Year 2022 Distribution of Based Aircraft
Palo Alto	553	+60	613	34.4%
Reid-Hillview	726	+174	900	50.5%
South County	178	+90	268	15.1%
Totals	**1457**	**+324**	**1781**	**100.0%**

2. **Designate South County Airport to accommodate all of the forecasted growth in demand**. This approach attempts to direct the anticipated increase in demand for basing capacity to South County. South County could both accommodate the entire forecasted increase in demand plus expand its role with respect to the type and size of aircraft it could accommodate entirely within its existing boundaries. If the airport boundary is expanded through the acquisition of adjacent property, basing capacity and on-airport facilities and services could expand even further. The following table illustrates the Year 2022 distribution of based aircraft resulting from this alternative:

Table 2B

ALTERNATIVE 2:
Designate South County Airport to Accommodate All Forecasts Growth In Demand

Airport	Existing Basing Capacity	Change in Basing Capacity	Year 2022 Number of Based Aircraft	Year 2022 Distribution of Based Aircraft
Palo Alto	553	0	553	31.0%
Reid-Hillview	726	0	726	40.8%
South County	178	+324	502	28.2%
Totals	**1457**	**+324**	**1781**	**100.0%**

3. **Develop policies that combine elements of Alternatives 1 and 2.** Alternatives that combine elements of the two approaches are possible as well. For example, even if South County is selected to accommodate the majority of growth in demand for basing capacity, building additional hangars at Palo Alto should be considered, for example, to make that airport financially self-sufficient. The following table illustrates one example of the Year 2022 distribution of based aircraft that could result from this alternative:

Table 2C

ALTERNATIVE 3:
Develop Policies that Combine Elements of Alternatives 1 and 2

Airport	Existing Basing Capacity	Change in Basing Capacity	Year 2022 Number of Based Aircraft	Year 2022 Distribution of Based Aircraft
Palo Alto	553	+60	613	34.4%
Reid-Hillview	726	+24	750	42.1%
South County	178	+240	418	23.5%
Totals	**1457**	**+324**	**1781**	**100.0%**

In all three scenarios our approach up to this point has been focused on how to meet future demand for additional aircraft storage, but it is important to avoid exceeding demand as well. The marketplace attempts to reach equilibrium between supply and demand and we know that other airports on the periphery of Santa Clara County are planning construction of hangars in the near term:

- San Carlos Airport expects to build 40 units in the next two years and an additional 80 units within 5 years
- Hayward Executive Airport plans to construct 43 T-hangars within the next two years and is seeking developers for 20 box hangars
- Hollister Airport has just completed construction of 28 T-hangars and expects to construct 25 - 30 additional T-hangars and 6 - 8 box hangars within 5 years

In the short term, these adjacent airports can expect to receive some of the aircraft whose owners would prefer to locate in Santa Clara County but cannot because space is not available. In the long term, some redistribution could be expected to take place.

BOARD OF SUPERVISORS' DIRECTION

At its meeting on November 19, 2002, the Santa Clara County Board of Supervisors adopted Alternative 3 to guide development of airport master plans for the three county-operated airports. The Board believes that this alternative would best meet the following overall objectives, which conform to the Guiding Principles:

- Achieve greater parity in the distribution of based aircraft to preclude disproportionate quality of life impacts at any one airport;
- Meet the needs of the aviation community by accommodating all of the forecasted growth in demand for basing capacity;
- Ensure the Airport Enterprise Fund remains self-sustaining without subsidy from the County General Fund.

Table 2D

Countywide Based Aircraft Forecast

Airport	Existing Basing Capacity	Previous Master Plan Basing Capacity	Change in Basing Capacity*	Year 2022 Number of Based Aircraft*	Year 2022 Distribution of Based Aircraft
Palo Alto	553	590	+23	613	31.3%
Reid-Hillview	726	900	-150	750	38.3%
South County	178	550	-132	418	21.3%
San Jose Int'l	279	804	-625	179	9.1%
Totals	**1736**	**2844**	**-884**	**1960**	**100.0%**

* The Airport Master Plan forecasts for San Jose International Airport adopted by the City of San Jose do not extend to 2022. The forecasted change in basing capacity and based aircraft were developed by Santa Clara County as part of this master plan process and reflect current trends at San Jose International Airport.

The above table is based on the demand forecast of 1,960 aircraft by the Year 2022 and will require adjustment if the demand forecast changes. Staff recommends re-forecasting demand every five years.

Comparisons with Individual Airport TAF Forecasts

While the TAF total for Santa Clara County differs by only 5.7% from the master plan forecast, the assumed allocation among airports does differ more significantly.

The 2020 TAF forecast for Palo Alto shows a growth of 64 based aircraft. These master plan forecasts anticipate an increase of 89 based aircraft.

The 2020 TAF forecast for Reid-Hillview shows a growth of 242 based aircraft. These master plan forecasts anticipate an increase of 63 based aircraft.

The 2020 TAF forecast for South County shows no change in based aircraft. These master plan forecasts anticipate an increase of 328 based aircraft.

The 2020 TAF forecast for San Jose International shows no change in based aircraft. These master plan forecasts anticipate a decrease of 100 based aircraft.

Forecasted Annual Operations at Recommended Basing Capacity

An airport's impact on the surrounding community is proportional to the number of annual operations, which is a function of the number of based aircraft. Since the purpose of this phase of the master planning process is to determine the role — and therefore the basing capacity — of each airport, it is important to know how a change in based aircraft would affect the number of annual flight operations. This section forecasts the number of annual flight operations that would occur if the airports were at their recommended basing capacity.

Forecasts of annual aircraft operations at the recommended basing capacity have been developed by multiplying the recommended number of based aircraft by a ratio of annual operations per based aircraft. Unique ratios were developed for each airport based upon historical data. This ratio reflects the many factors that shape the volume of operations at an airport:

- The amount of training activity
- The volume of transient aircraft
- Congestion
- Weather cycles
- Availability and quality of instrument approach procedures
- The number and quality of aviation businesses
- Proximity to pilots' residences

Two general principles affect the operations per based aircraft ratios:

- As the number of based aircraft increases, the average number of operations per based aircraft will decline due to congestion, especially as activity levels approach the operational capacity of the runway(s).
- Flight training generates more operations per based aircraft than recreational or business flying.

In the previous discussion regarding hypothetical maximum basing capacity, we assumed that all developable property at RHV and PAO would be used for aircraft storage (i.e., none of the property would be made available for aviation businesses, including new flight schools). Therefore, each additional based aircraft would generate on average fewer annual operations than the existing mix of based aircraft, which includes aircraft used primarily for flight training. Therefore, we may conclude that the number of annual

flight operations would not change in the same proportion as the increase in the number of based aircraft.

Reid-Hillview

There are currently about 342 annual operations per based aircraft at Reid-Hillview Airport with 687-based aircraft. The following table summarizes the forecasted annual operations per based aircraft and total annual operations for the existing level of based aircraft, the current basing capacity, and the 2022 recommended basing capacity.

Table 2E

Forecasted Operations for Reid-Hillview Airport

Scenario	Based Aircraft	Annual Operations per Based Aircraft	Total Annual Operations
Existing Based Aircraft	687	342	235,213
Existing Capacity	726	333	241,882
Recommended Capacity	750	328	245,986

The 2020 TAF operations forecast for Reid-Hillview is 290,061. If the forecast trend was extended to 2022 the total would be 298,406. Therefore, the maser plan forecast is over 50,000 lower than the trend implicit in the TAF forecast.

Palo Alto

There are currently about 400 annual operations per based aircraft at Palo Alto Airport with 524-based aircraft. The following table summarizes the forecasted annual operations per based aircraft and total annual operations for the existing level of based aircraft, the current basing capacity, and the 2022 recommended basing capacity.

Table 2F

Forecasted Operations for Palo Alto Airport

Scenario	Based Aircraft	Annual Operations per Based Aircraft	Total Annual Operations
Existing Based Aircraft	524	400	209,709
Existing Capacity	553	390	215,509
Recommended Capacity	613	371	227,509

The 2020 TAF operations forecast for Palo Alto is 243,862. If the forecast trend was extended to 2022 the total would be 247,495. Therefore, the maser plan forecasts are about 20,000 lower than the trend implicit in the TAF forecast.

South County

There are currently about 630 annual operations per based aircraft at South County Airport with 90-based aircraft. The very high number of annual operations per based aircraft reflects the low number of based aircraft relative to the high volume of training activity — much of it generated by aircraft based at other airports. The following table summarizes the forecasted annual operations per based aircraft and total annual operations for the existing level of based aircraft, the current basing capacity, and the 2022 recommended basing capacity:

Table 2G

Forecast Operations for South County Airport

Scenario	Based Aircraft	Annual Operations per Based Aircraft	Total Annual Operations
Existing Based Aircraft	90	630	56,708
Existing Capacity	178	500	89,000
Recommended Capacity	418	420	175,560

The TAF for South County Airport forecasts no growth in operations from its current estimate of 55,000 annual operations. The master plan forecasts are higher by 120,000 annual operations.

SUMMARY OF FORECASTS

Table 2H presents a summary of the 20-year forecasts presented earlier in this chapter. It also contains forecasts of intermediate years. A brief description of the factors that shaped the forecast for each airport is presented.

Reid-Hillview Airport

This airport's location in a dense suburban residential area makes significant increases in based aircraft and operations inappropriate. No new acreage will be allocated to fixed base operators, so increases in training activities are not anticipated. A limited number

of new hangars will increase the level of activity slightly during the 20-year planning period.

Palo Alto Airport

This airport is constrained by the levees that protect the facility from San Francisco Bay. There is limited ability to accommodate additional aircraft. The small growth in activity will come from the creation of hangars or an additional fixed base operator on the remaining unutilized land.

South County Airport

The current hangar project will add about 100 based aircraft. These hangars are expected to be occupied in 2005. Continued growth in based aircraft is expected to occur as additional hangars become available; demand is very high. The addition of one or more fixed base operators will become more likely following extension of the runway. The anticipated addition of high-end golf courses and estate homes in the area is expected to generate increase use by turboprops and small jets. Over the long term, development of commercial and industrial uses in the San Jose-Gilroy corridor will also boost activity levels.

Table 2H

Master Plan Activity Forecasts

	Current 2002	5-Year 2007	10-Year 2012	20-Year 2022
Based Aircraft				
Reid-Hillview Airport	687	695	720	750
Palo Alto Airport	524	540	575	613
South County Airport	90	210	310	418
Total	1,301	1,445	1,605	1,781
Annual Aircraft Operations				
Reid-Hillview Airport	235,213	238,000	241,000	245,986
Palo Alto Airport	209,709	215,000	221,000	227,509
South County Airport	56,000	95,000	135,000	175,560

Source: Mead & Hunt, January 2005

Chapter 3

Airfield Design

3

Airfield Design

OVERVIEW

The *Facilities Plan*, Figure 3D, presents the recommended airfield improvements.

The principal airfield design issues examined in this chapter are the optimal length and alignment of the airport's single runway. Although the airport's role has been established — a general aviation airport — the airport's classification remains to be determined. Selection of the classification will determine the appropriate runway length, as well as optimal taxiway locations and other airfield design elements.

BASIC DESIGN FACTORS

The Federal Aviation Administration (FAA) provides guidance for airport design through a series of Advisory Circulars. These guidelines promote airport improvements that enhance airport safety and operational utility for the types of aircraft currently using or anticipated to use the airport on a regular basis. Major considerations include:

- Airport Role
- Airport Classification
- Meteorological Conditions and Prevailing Winds

Airport Role

South County Airport currently functions as a general aviation airport serving a variety of aeronautical purposes, including:

recreation, flight training, and business. The mix of airplanes using the airfield range from single-engine piston aircraft to twin-engine turboprops and business jets. Its role as a general aviation airport is not proposed to be changed. Airline service is not proposed to be accommodated, nor are any military facilities anticipated to be established at the airport.

AIRCRAFT APPROACH CATEGORY

- Category A: aircraft approach speed less than 91 knots.
- Category B: speed 91 knots or more but less than 121 knots.
- Category C: speed 121 knots or more but less than 141 knots.
- Category D: speed 141 knots or more but less than 166 knots.
- Category E: speed 166 knots or more.

AIRPLANE DESIGN GROUP

- Group I: wingspan up to but not including 49 feet.
- Group II: 49 feet up to but not including 79 feet.
- Group III: 79 feet up to but not including 118 feet.
- Group IV: 118 feet up to but not including 171 feet
- Group V: 171 feet up to but not including 214 feet.
- Group VI: wingspan greater than 214 feet.

Airport Classification

To be useful for facility planning purposes, the broadly characterized airport role must be more precisely defined. The Federal Aviation Administration has established a set of airport classifications known as Airport Reference Codes (ARC) applicable to each airport and its individual runway and taxiway components. The primary determinants of these classifications are the operational and physical characteristics of the most demanding types of airplanes intended to use the runway and taxiway system (i.e. the "design aircraft") and the instrument approach minimums applicable to a particular runway end. Each Airport Reference Code consists of two components relating to an airport's design aircraft:

- Aircraft Approach Category – Depicted by a letter (A-E), this component relates to aircraft approach speed, an operational characteristic that provides an indication of runway length requirements.
- Airplane Design Group – Depicted by a Roman numeral (I-VI), this component relates to airplane wingspan, a physical characteristic that provides an indication of setback requirements (i.e. separation criteria for structures, taxiways, taxilanes etc.)

In Approach Categories A and B, FAA standards distinguish between small aircraft (12,500 lbs. or less) and large aircraft (over 12,500 pounds). Above Category C, all aircraft are assumed to be large.

Generally, Aircraft Approach Category applies to criteria for runways and runway related facilities. Airplane Design Group primarily relates to separation criteria involving taxiways and taxilanes.

Design Aircraft

In this context, the FAA defines *regularly* as more than 500 operations per year.

For airfield planning purposes, the operational and physical characteristics of the most demanding airplane intended to regularly operate at the airport is considered the critical design aircraft. The design criteria for the length, width, and strength of

the runways and taxiways are tied directly to the speed, wingspan, and weight of the design aircraft, respectively.

In its current capacity, the airport is capable of serving most small general aviation aircraft. The majority of aircraft that operate at South County Airport are single-engine and light, twin-engine propeller-driven airplanes (e.g., Cessna Skyhawk and Beech Baron). The airport also sees limited use by turbo-props (e.g., Cessna 441 Conquest) and smaller business jet aircraft (e.g., Cessna Citation I) that operate at the airport on a transient basis.

There is a range of alternative *critical aircraft* that would fit within the general role defined for South County Airport. The choice of critical aircraft will affect the recommended runway length and other airfield design elements. Four alternative critical aircraft have been identified that represent the range of physcially possible alternatives:

1. Beech Baron
2. Beech King Air B200
3. Cessna Citation Encore
4. Hawker 800XP

Airport Classification/Design Standards

A basic airfield design requirement which must be assessed is the capability of the facilities to safely accommodate the types of aircraft which seek to operate at the airport. Runway length is a key component of this assessment, but other facility dimensions — such as pavement widths and the lateral clearances from the runway to adjacent taxiways and structures — also are important.

FAA design standards for these features are set in accordance with the *Airport Reference Code* (ARC) applicable to the airport as a whole or, in many cases, to individual runways or taxiways. The primary determinants of ARC classifications are:

- The approach speed, wingspan, and weight of the most demanding types of aircraft a runway or taxiway is intended to serve; and
- The existing or planned runway approach type and visibility minimums.

Ideally, an airport's runway/taxiway system can be designed to conform to the standards associated with these two ARC determinants. Often, though, the ARC which may be appropriate

with respect to airport usage is not consistent with the ARC which fits the existing airfield dimensions. Additionally, the opportunities to upgrade the facilities to conform to current and future operational needs may be limited by the development constraints of the site.

By usage and design, the current airport reference code for South County Airport falls into the B-I (small aircraft) classification for runways having approach visibility minimums of ¾ mile or more. This classification is intended to accommodate aircraft having approach speeds of less than 121 knots (Approach Category B), wingspans less than 49 feet (Design Group I), and maximum takeoff weights of 12,500 pounds or less (small airplanes). However, some of the aircraft which occasionally operate at the airport slightly exceed these criteria. The Cessna 441 Conquest, for example, has a wingspan of 49.3 feet and fits within the Design Group II specifications. Additionally, the airport's runway width of 75-feet falls under the B-II category. Despite these minor variances, if the role of the airport remains unchanged, the overall character of the airport's usage would remain within the ARC B-I (small) category.

Beech Baron

Beech King Air B200

Cessna Citation Encore

Hawker 800XP

Four alternative *design aircraft* were identified previously in the chapter. Although there is considerable overlap in the airfield design requirements of these aircraft, each represents a distinct package of requirements. The *airport reference code* and *descriptive name* for each alternative is as follows:

1. Beech Baron: ARC B-I (small) — No Change
2. Beech King Air B200: ARC B-I (small) — All Small Aircraft
3. Cessna Citation Encore: ARC B-II — Basic Accommodation of Business Jets
4. Hawker 800XP: ARC C-II — Enhanced Accommodation of Business Jets

All of these aircraft are in production. A brief description of each follows.

Beech Baron: A twin-engine piston aircraft with six seats (including one for the pilot). It has a gross weight of 5,500 pounds and a 37.8 foot wingspan.

Beech King Air B200: A twin-engine turboprop with a gross weight of 12,500 pounds. Depending upon seating configuration can accommodate between 8 and 16 seats (including one for the pilot). It has a wingspan of 54.5 feet.

Cessna Citation Encore: A twin-engine jet aircraft with a gross weight of 16,630 pounds. Depending upon the seating configuration will have between 7 and 11 seats (including crew). This aircraft has a wingspan of 54.1 feet. It is a small-cabin jet typically not used for transcontinental flights.

Hawker 800XP: A midsize corporate jet aircraft with a gross weight of 28,000 pounds. Typical seating configuration for corporate layout is 8 passengers with a flightcrew of two. The maximum seating configuration for this aircraft is 16 (including crew). This aircraft has a wingspan of 51.8 feet. Hawker 800XP is an aircraft commonly used for fractional ownership.

Fractional ownership: A growing aircraft ownership arrangement in which one purchases a share of an aircraft. Much like a time-share, this purchase gives one access to an aircraft at a specified rate.

Table 3A summarizes the FAA design standards associated with several ARC classifications potentially applicable to South County Airport. The significance of these standards with respect to individual components of the airfield design is discussed in subsequent sections of this chapter.

RUNWAY LENGTH REQUIREMENTS

Design temperature: the average high temperature for the hottest month.

Runway length is a fundamental airfield design factor. Runway length requirements for specific aircraft are dependent upon airfield elevation and temperature because these variables have a direct effect on aircraft performance. The lower the elevation and temperature, the better the aircraft performance, which translates into shorter runway requirements. The length of the runway is determined by considering either the family of airplanes having similar performance characteristics or a specific airplane needing the longest runway. In either case, the choice is based upon airplanes that are forecast to use the runway on a regular basis.

The FAA's computer program derived from Advisory Circular 150/5325-4A, *Runway Length Requirements for Airport Design*, was utilized to aid in defining the appropriate future runway length at South County Airport. This program calculates runway length for various classes of aircraft using several inputs: airport elevation, mean maximum temperature, and other factors. Runway lengths are categorized by the percentage of the aircraft fleet that can utilize the runway at a given percentage of their maximum load. An aircraft's load includes passengers and their baggage, cargo, and fuel. The results are presented in Table 3B.

Item	FAA Airport Design Standards [1]		
Airport Reference Code	B-I (small)	B-II	C-II
Aircraft Approach Speed	<121 kts	<121 kts	<141 kts
Aircraft Wingspan	<49 ft.	<79 ft.	< 79 ft.
Aircraft Weight Group (lbs)	≤12,500	>12,500	>12,500
Approach Visibility Minimums	Visual or ≥ ¾ mile	Visual or ≥ ¾ mile	Visual or ≥ ¾ mile
Runway Design			
Width	60 ft.	75 ft.	100 ft.
Blast Pad			
Width	80 ft.	95 ft.	120 ft.
Length beyond Runway End	60 ft.	150 ft.	150 ft.
Safety Area			
Width	120 ft.	150 ft.	500 ft.
Length beyond Runway End	240 ft.	300 ft.	1,000 ft.
Obstacle Free Zone [2]			
Shape[3]	A	A	A
Width (W)	250 ft.	400 ft.	400 ft.
Vertical Height (H) [4, 5]	NA	NA	NA
Slope (S) [6]	NA	NA	NA
Object Free Area			
Width	250 ft.	500 ft.	800 ft.
Length beyond Runway End	240 ft.	300 ft.	1,000 ft.
Gradient (maximum)	2.0%	2.0%	1.5%
Runway Setbacks			
From Runway Centerline to:			
Parallel Runway Centerline [7]	700 ft.	700 ft.	700 ft.
Hold Line	125 ft.	200 ft.	250 ft.
Parallel Taxiway	150 ft.	240 ft.	300 ft.
Aircraft Parking Line	125 ft.	250 ft.	400 ft.
Building Restriction Line [8]	370 ft.	495 ft.	495 ft.
Helipad for:			
Small Helicopters (≤6,000 lbs.)	300 ft.	500 ft.	500 ft.
Medium Helicopters (≤12,000 lbs.)	500 ft.	500 ft.	500 ft.
Heavy Helicopters (>12,000 lbs.)	700 ft.	700 ft.	700 ft.
Taxiway Design			
Width	25 ft.	35 ft.	35 ft.
Safety Area Width	49 ft.	79 ft.	79 ft.
Taxiway and Taxilane Setbacks			
From Taxiway Centerline to:			
Parallel Taxiway/Taxilane [8]	69 ft.	105 ft.	105 ft.
Fixed or Movable Object	45 ft.	66 ft.	66 ft.
From Taxilane Centerline to:			
Fixed or Movable Object	40 ft.	58 ft.	58 ft.
Runway Protection Zone			
Width at Inner End	250 ft.[10]	500 ft.[10]	500 ft.[10]
Width at Outer End	450 ft.	700 ft.	1,010 ft.
Length	1,000 ft.	1,000 ft.	1,700 ft.

Table 3A

Airport Design Standards

South County Airport

Notes to Table 3A:

[1] Source: FAA Advisory Circular 150/5300-13, Change 7, *Airport Design* (October 2002).

[2] Obstacle Free Zone normally extends 200 feet beyond end of runway; additional length required for runways with approach lighting systems.

[3] Runway Obstacle Free Zone cross-section shapes:

[4] Height increases 3 feet per 1,000 feet of airport elevation.

[5] Indicated dimensions for runways with approach visibility minimums <¾ mile are for Category I instrument runways. Criteria for Category II and Category III runways are more restrictive.

[6] Maximum of 0.8% in first and last quarters of runway.

[7] Indicated runway separation is for planning purposes. FAA air traffic control criteria permit simultaneous operations by light, single-engine propeller airplanes with runways as close as 300 feet apart and by twin-engine propeller airplanes with runway separation of 500 feet. (FAA Order 7110.656).

[8] The FAA no longer has fixed-distance standards for the Building Restriction Line location. The indicated setback distances are based on providing 7:1 transitional slope clearance over a 35-foot building situated at the same base elevation as the adjacent runway and can be adjusted in accordance with local conditions.

[9] Assumes same size airplane uses both taxiway and adjacent taxiway/taxilane. Distance can be reduced if secondary taxiway/taxilane is limited to use only by smaller airplanes.

[10] For runways with approach visibility minimums of ¾ mile or more, but less than 1 mile, runway protection zone dimensions are 1,000 feet width at inner end, 1,510 feet width at outer end, and a length of 1,700 feet.

Table 3A, continued

Table 3B
Runway Length Requirements for South County Airport

Airport Elevation	284 feet
Mean daily maximum temperature of the hottest month	88° F (July)
Maximum difference in runway centerline elevation	20 feet
Wet and slippery runways	
SMALL AIRPLANE WITH LESS THAN 10 PASSENGER SEATS:	
75 percent of these small airplanes	2,570 feet
95 percent of these small airplanes	3,120 feet
100 percent of these small airplanes	3,720 feet
LARGE AIRPLANES OF 60,000 POUNDS OR LESS:	
75 percent of these large aircraft with 60 percent useful load	5,380 feet
75 percent of these large aircraft with 90 percent useful load	7,000 feet
100 percent of these large aircraft with 60 percent useful load	5,600 feet
100 percent of these large aircraft with 90 percent useful load	8,430 feet

Source: Advisory Circular 150/5325-4A, Runway Length Requirements for Airport Design

Runway Length Alternatives

The above tabulation shows the various runway lengths required by South County Airport's 284-foot elevation and 88° F design temperature for various classes of aircraft. One may deduce from the table that runway length requirements are on a continuum determined by size of aircraft, percentage of a particular size aircraft to be accommodated and, for large aircraft, the percent maximum useful load that may be carried. This data was used to develop the following four distinct runway length alternatives:

Alternative 1 – No Change

Drawings of each alternative are presented in Figure 3A.

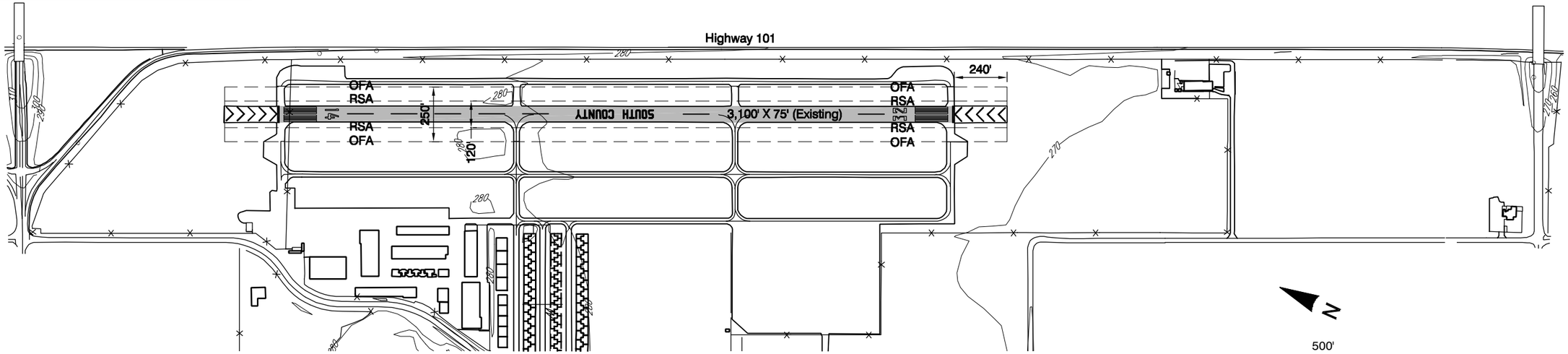
Currently, South County Airport's single runway (Runway 14-32) is 3,100 feet long. In this alternative the existing runway length would be retained. The Beech Baron would remain the design aircraft and the runway is designed to meet ARC B-I (small) criteria. This length is sufficient to accommodate nearly 95 percent of all small aircraft. Under almost all conditions this length is adequate for use by single-engine and light, twin-engine piston aircraft; and very limited use by light turbo-prop and the smallest business jet aircraft.

Alternative 2 – All Small Aircraft

With minimal facility upgrades, the airport could serve 100 percent of all small general aviation aircraft. Essentially all of these airplanes have less than 10 passenger seats and fall within the ARC B-I (small) criteria. The design aircraft would be the Beech King Air B200. For the airport to fully accommodate all of these

Alternative 1 - No Change

1. Runway 14-32 Length = 3,100 Feet
2. ARC B-I (small)



Alternative 2 - All Small Aircraft

1. Runway 14-32 Length = 3,700 Feet
2. ARC B-I (small)

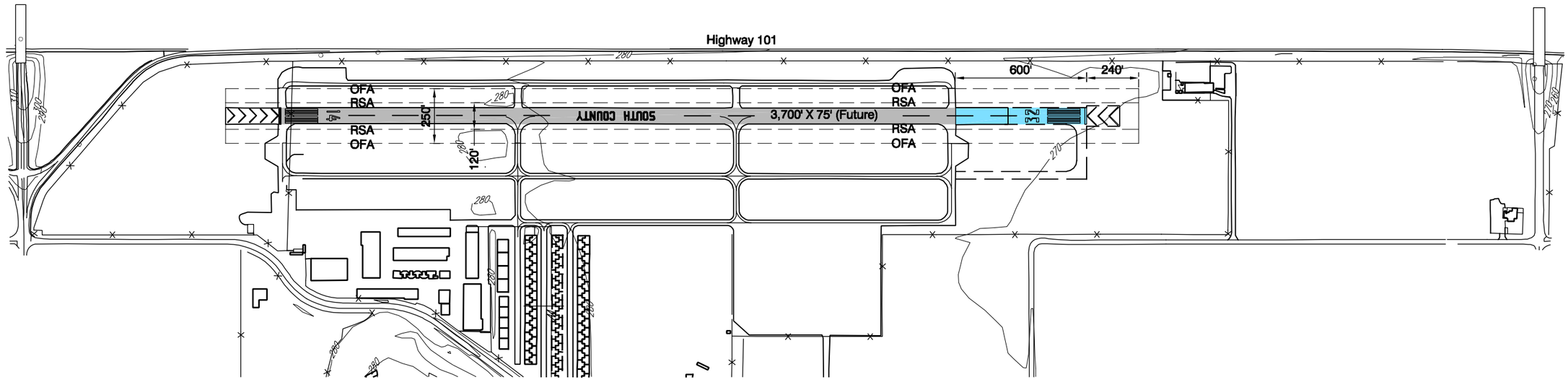


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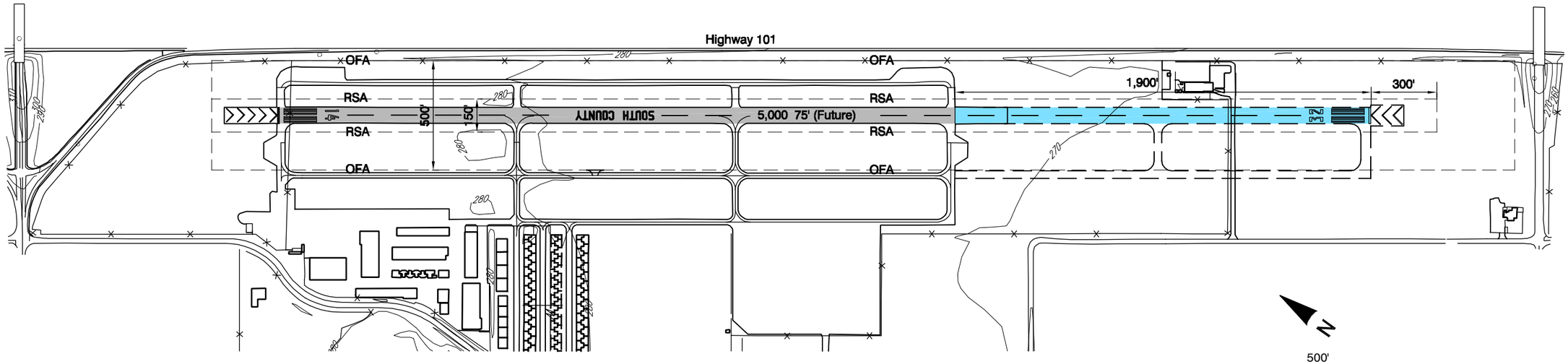
Figure 3A

Runway Length Alternatives

South County Airport

Alternative 3- Basic Accommodation of Business Jets

1. Runway 14-32 Length = 5,000 Feet
2. ARC B-II



Alternative 4 - Enhanced Accommodation of Business Jets

1. Runway 14-32 Length = 4,700 Feet
2. ARC C-II

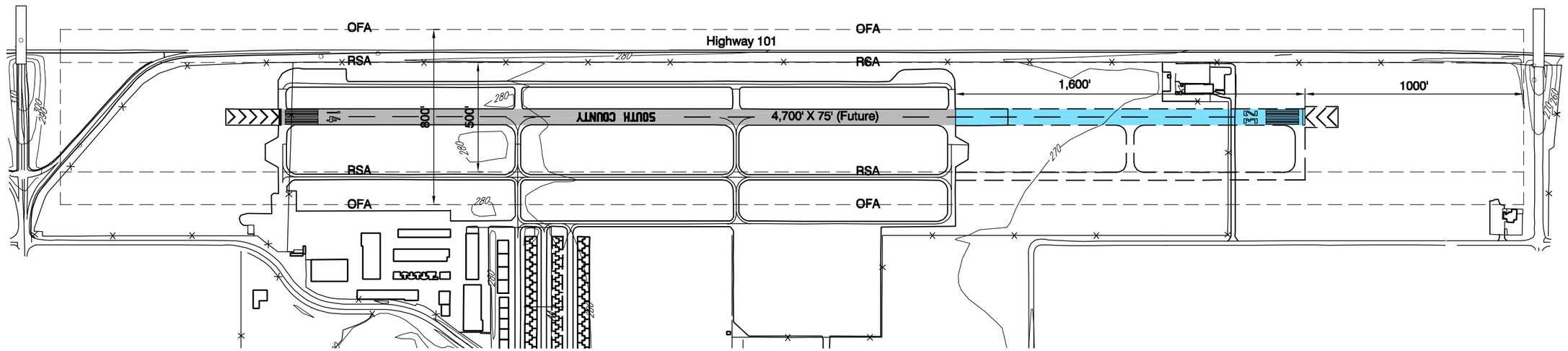


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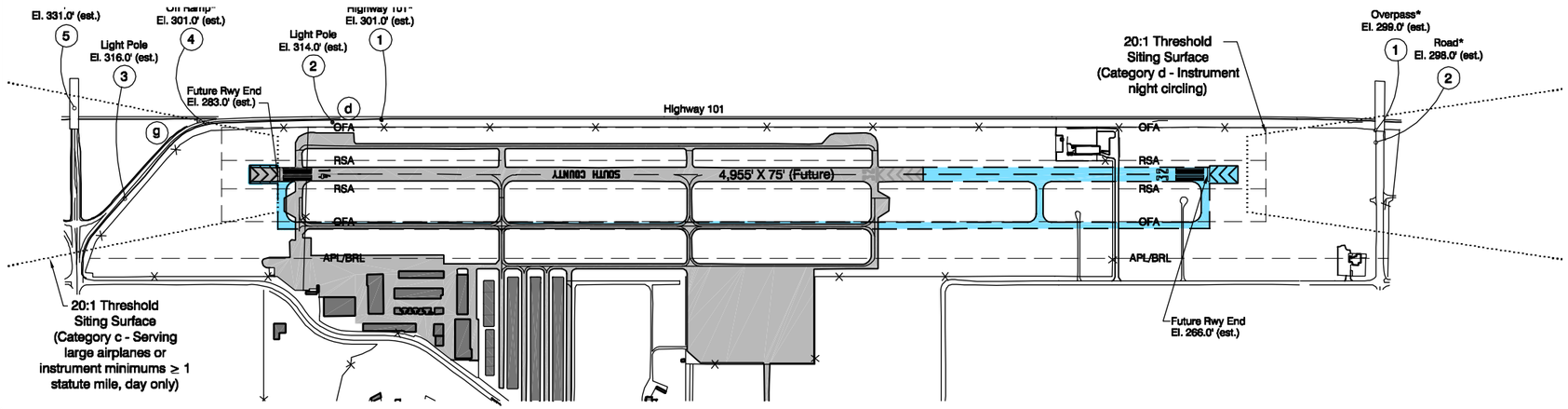
Figure 3A (continued)

Runway Length Alternatives

South County Airport

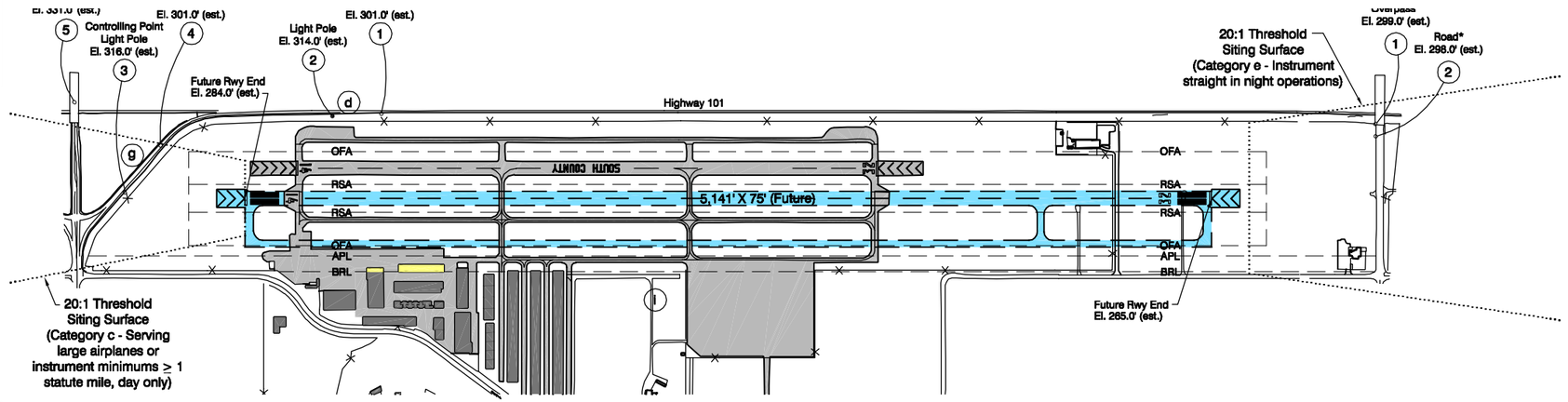
Alternative 1 - Retain Existing Alignment

1. Runway 14-32 Length = 4,955 Feet
2. ARC B-II



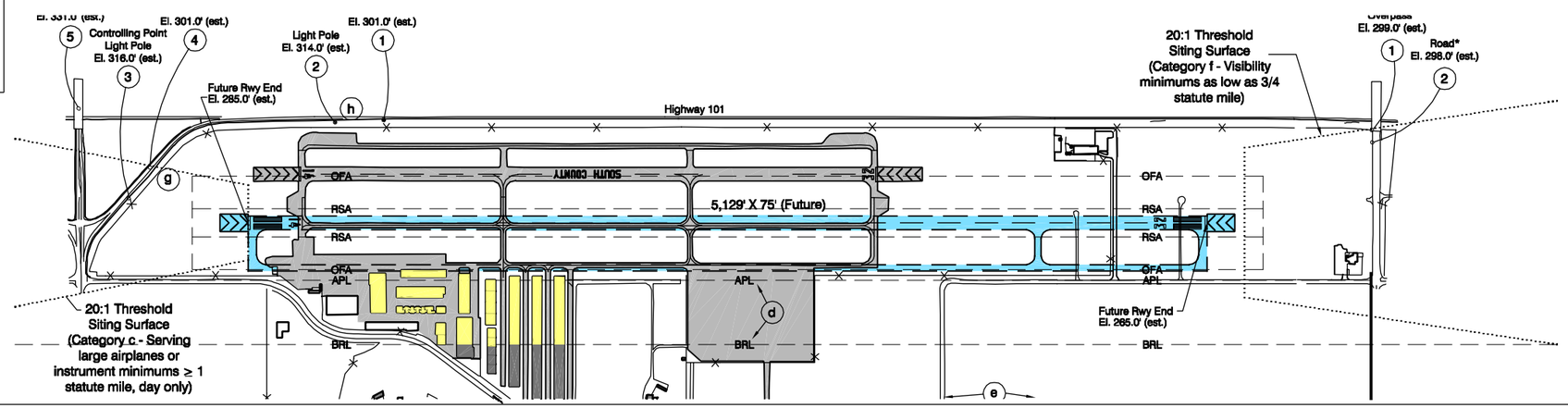
Alternative 2 - Realign Runway 160 Feet

1. Runway 14-32 Length = 5,141 Feet
2. ARC B-II



Alternative 3 - Realign Runway 260 Feet

1. Runway 14-32 Length = 5,129 Feet
2. ARC B-II



LEGEND

- Future Pavement
- Building to be Removed

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Figure 3B

Runway Alignment Alternatives

South County Airport

airplanes, a runway length of 3,700 feet would be needed. This would require lengthening the runway 600 feet.

Alternative 3 – Basic Accommodation of Business Jets

Alternative 3 designs the runway to meet ARC B-II criteria. The design aircraft would be the Cessna Citation Encore. In order to accommodate regular use by business jets, the runway would need to be extended 1,900 feet to achieve a length of 5,000 feet. This length is slightly less than required to accommodate 75 percent of large aircraft weighing less than 60,000 pounds with 60 percent useful load. However, at airports near sea level, a length of 5,000 feet is typically the minimum length required to accommodate small and medium business jets. Many business jets will be significantly constrained by this runway length during warm weather.

The runway pavement would require strengthening to accommodate the heavier aircraft loads. A pavement strength of 35,000 pounds for dual wheel aircraft would be appropriate for this length.

Alternative 4 – Enhanced accommodation of business jets

Although South County Airport is the least constrained facility of the three County-operated airports, some site constraints do exist. Public roads located beyond each end of the runway limit the configuration of the airfield. This alternative assumes that the roads are fixed constraints.

In this alternative, the runway is designed to accommodate ARC C-II aircraft (e.g., Hawker 800XP). The intent of this alternative is to extend the airport's runway length to accommodate faster (e.g., Category C) jets. However, in order to accommodate this class of aircraft, the runway safety area requirements and required clear areas become larger. Under this scenario, the maximum feasible length attainable for South County Airport's single runway is about 4,700 feet. This length would consequently preclude most of the higher performance aircraft – the types of aircraft which this alternative is intended to accommodate – from operating at the airport. This conflict indicates that the airport's runway can not be designed to meet ARC C-II criteria.

See Table 3A for a comparison of FAA standards for ARC B-II and C-II..

Declared Distances

Runways are normally fully usable in both directions. Furthermore, they normally have clear approaches to each runway

end. The declared distances concept can come into play on runways where providing a conventional configuration is impractical for cost or other reasons. Declared distances allow portions of the runway to be counted for certain aircraft operational requirements, but not included for others. For example, an obstruction might limit the landing distance available in one direction, but not restrict takeoffs in the same direction. The resulting operational lengths must be shown on the airport layout plan and approved by the FAA.

Using declared distances to provide the longest feasible runway for South County Airport was investigated. A runway length of over 6,000 feet is possible using declared distance. However, the FAA strongly discourages the use of declared distances on new runways. Typically, declared distances are used to address operational limitations of existing facilities. Therefore, declared distances were not utilized in the above runway length alternatives.

Evaluating Runway Length Alternatives

As stated earlier, the selection of an appropriate runway length alternative (and hence the airport's classification) depends on the family of aircraft forecast to use the runway on a regular basis. Since the existing runway is adequate for nearly 95 percent of all small aircraft, the question becomes whether future demand by larger aircraft is likely. In order to answer this question one must estimate the future level of demand by the corporate segment of general aviation, which entails an examination of the surrounding land uses and the projected level of development in the San Jose – Gilroy corridor. The General Plans and relevant Specific Plans adopted by the cities of San Jose, Morgan Hill and Gilroy are a primary source of this information, as well as the Association of Bay Area Governments (ABAG) Household and Job Projections 2005 – 2030.

San Jose's General Plan identifies the Coyote Valley as one of the areas having the highest job growth potential. The San Jose City Council's vision and expected outcomes for the Coyote Valley Specific Plan currently under development includes a minimum of 25,000 new households and 50,000 new jobs. The 50,000 jobs are primarily to be industrial/office jobs, not including the additional retail support or public/quasi-public jobs that must also be accommodated in the Plan area. *(Source: handout to Coyote Valley Specific Plan Task Force.)*

Gilroy and Morgan Hill's General Plans clearly state that those cities have large amounts of undeveloped land for residential,

commercial and industrial uses. In both cities, a significant amount of undeveloped land is designated for industrial/business park use. Gilroy has 440 acres of land set aside for campus industrial use plus another business park parcel of 184 areas, altogether allowing for over 5 million square feet of growth in industrial/office uses. A primary marketing objective for two of the campus/business parks is to bring in high-tech and biotech companies. The City has the potential for some large employers and/or corporate headquarters in these industries to be added in the next 15 to 20 years. *(Source: Gilroy Economic Development Corporation)*

Morgan Hill's General Plan identifies over 700 acres of vacant industrial land. The City seeks a diversity of uses for these industrial acres, including a variety of small businesses. However, four sites adding up to 225 acres have been identified for development of large, distinct business parks that will attract clean, high-tech businesses and have the potential for attracting large employers and/or corporate headquarters. *(Source: Morgan Hill General Plan)*

Given the nature and extent of the development expected in the San Jose – Gilroy corridor, it is reasonable to assume that a significant increase in demand by the corporate segment of general aviation will accompany the arrival of the corporate headquarters, jobs and households. These corporate aircraft will require appropriate airport facilities in order to meet the increased demand. Given the existing demand for these types of facilities at San Jose International Airport (SJC), it appears unlikely that SJC would be able to accommodate the future demand discussed here.

Hawker 800XP

Alternative 1 (No Change) and Alternative 2 (All Small Aircraft) do not accommodate large aircraft (i.e., those over 12,500 pounds), and would limit or exclude larger turboprops and most business jets from operating at South County Airport. As noted above, there is a paradox inherent in Alternative 4 (Enhanced Accommodation of Business Jets) that makes this alternative infeasible.

Alternative 3 (Basic Accommodation of Business Jets) could serve the full range of aircraft types with some limitations for large aircraft during warmer weather and is the only one of the four alternatives that preserves the ability to accommodate future demand. Therefore, the Cessna Citation Encore will be used as the critical aircraft, the future runway length will be set at 5,000 feet, and ARC B-II design standards will apply to the runway/taxiway system.

INSTRUMENT APPROACH CAPABILITIES

Existing

South County Airport is presently served by a GPS-based nonprecision instrument approach to Runway 32. The lowest approach minimums for the airport are 1,040 feet above the airport elevation and 1¼ mile visibility. Runway 14 has only a visual approach procedure.

The Global Positioning System (GPS) is a worldwide radio-navigation system formed from a constellation of 24 satellites and their ground stations.

- While there are many thousands of civil users of GPS world-wide, the system was designed for and is operated by the U. S. military.
- GPS provides specially coded satellite signals that can be processed in a GPS receiver, enabling the receiver to compute position, velocity and time.

Future

Obtaining reduced approach minimums is one of the County's most desired facility improvements. Improved minimums would increase the utility of the airport by enabling it to be used during a wider range of weather conditions.

Pilots who are instrument rated routinely want airports to have the best possible instrument approach procedures. In the past, the cost of installing on-airport navigational aids necessary for approaches with low visibility and cloud ceiling minimums often precluded establishment of these types of procedures. Airports had to have regular airline service or a high volume of general aviation aircraft operations, as well as the weather conditions under which the added approach capabilities would be beneficial. However, within the last few years, introduction of GPS as an airport navigational aid has begun to offer much lower cost opportunities for establishment of new instrument approach procedures. Now, any airport can theoretically have some type of GPS instrument approach with no need for on-ground facilities.

As a practical matter, however, nearby obstructions and the design of the airfield itself often limit the approach minimums that can be obtained. For example, to obtain approach minimums lower than 3/4 mile, the FAA requires application of more stringent criteria with regard to the height and location of trees and other objects near the runway end. Also the FAA design standards indicate that a minimum runway landing length of 4,200 feet would be required for approach minimums of less than ¾ mile to be established.

POTENTIAL RUNWAY REALIGNMENT TO IMPROVE INSTRUMENT APPROACH MINIMUMS

The airport is constrained by State Highway 101 to the east, associated interchanges on the north and south, and a public road

to the west. Additionally, the existing building area located in the northwesterly corner of the airport is substantially developed. For airfield planning purposes, these objects are considered fixed constraints. This discussion examines options for realigning the runway to enable the airport to achieve lower approach/visibility minimums. Three runway alignment alternatives were evaluated as part of this planning effort (See Figure 3B). All three alternatives apply ARC B-II design criteria, consistent with the recommended runway length alternative (Alternative 3 – Basic Accommodation of Business Jets).

Alternative 1 - Retain existing alignment

In its present alignment, Runway 32 is served by both a straight-in instrument approach procedure with visibility minimums of 1 ¼ statute mile and instrument night circling procedures. As noted above, Runway 14 is currently a visual runway. Due to the proximity of an on-ramp off the end of Runway 14, the best instrument approach minimums possible would be greater than 1 statute mile, day only. In either case, these instrument procedures merely bring the aircraft to the airport vicinity, from which point they can then, under visual conditions, land on the runway.

Alternative 2 - Realign Runway 160 feet to the west

In this alternative, the runway would be relocated 160 feet west of the existing runway centerline. This realignment would enable Runway 32 to meet the planning criteria for instrument straight-in night operations. However, operationally, the airport already has this capability. The consequence of relocating the runway is that all of the required lateral clearances also shift. The result is that several of the buildings in the northwest corner of the property do not meet setback requirements. Specifically, one row of hangars and portions of other buildings penetrate the building restriction line. Additionally, shifting the runway/taxiway system to the west would reduce the parallel taxilane separation to 87 feet. The standard is 105 feet. Unless the FAA approved modifications to standards, these structures would need to be removed.

Alternative 3 - Realign Runway 260 feet to the west

The third option is to relocate the runway 260 feet west from the runway centerline. This would enable a straight-in instrument approach with visibility minimums as low as ¾ statute mile or lower (e.g., precision approach). As in alternative 2, the lateral clearances would also shift accordingly. However, this alternative

is much more devastating to the building area due to more stringent criteria. Consequently, a large portion of the building area would penetrate the building restriction limit line and FAR Part 77 transitional surface. Many of the hangars and other buildings would require obstruction lighting or demolition. Additionally, property acquisition and other facility modifications would be required to make this alternative feasible.

Recommended Alignment

The benefit gained by realigning the runway/taxiway system, as described in the latter two alternatives, is judged to be modest. Alternative 2 (Realign Runway 160 feet) would provide no enhancement to the airport's existing instrument approach procedures. Realigning the runway 260 feet to the west (Alternative 3) to accommodate a precision approach to the airport would essentially eliminate the entire building area and require numerous facility improvements. Although airspace restrictions and physical constraints surrounding the airport limit the potential for obtaining lower instrument approach minimums, Alternative 1 (Retaining Existing Alignment) is considered the preferred alternative. Additionally, advancements in technology could possibly enable the airport to obtain reduced approach minimums in the future.

OTHER AIRFIELD DESIGN ELEMENTS

Runway Width

Runway 14-32 is currently 75 feet wide. The FAA standard for a runway accommodating aircraft in the ARC B-II design category is 75 feet. However, two factors taken together suggest that the runway should be upgraded to a width of 100 feet. First, it is expected that the airport will receive use by transient Category C aircraft as the San Jose - Gilroy corridor continues to develop. Second, corporate jets are anticipated to comprise a significant portion of the B-II aircraft using the airport – a factor which is not accounted for in the FAA width standard. Jet aircraft are much more susceptible to engine damage from foreign object debris ("FOD") on or adjacent to the runway than propeller aircraft; a wider runway reduces risk of FOD damage. For these two reasons, this plan proposes increasing the runway width to 100 feet.

Pavement Strength

Runway 14-32 is designed to accommodate small aircraft (i.e., aircraft weighing less than 12,500 pounds). The pavement strength is 12,500 pounds for aircraft with single-wheel main landing gear. However, the design weight is insufficient to accommodate heavier aircraft, such as those in the ARC B-II category. It is recommended that the pavement strength for the entire length of the runway and all taxiways/taxilanes intended to accommodate the future design aircraft (Cessna Citation Encore) be increased to 35,000 pounds for aircraft with dual wheel configuration. This should be accomplished by the time that the proposed extension is constructed.

Runway Lighting, Marking, and Visual Approach Aids

Runway 14-32 is equipped with medium intensity runway lighting (MIRL). This lighting is suitable for the runway's existing and future use. The lighting system will need to be extended as part of the proposed runway extension project.

Runway 14-32 currently has basic markings, which indicates a visual runway. As noted above, the airport currently provides a GPS-based nonprecision instrument approach to Runway 32. Additionally, a nonprecision approach to Runway 14 is anticipated in the future. Although two ends of a runway having different approach categories (e.g., visual vs. nonprecision) can have different markings, it is more common to upgrade the markings to reflect the higher approach category. Therefore, it is recommended that both ends of the runway be remarked with nonprecision markings to reflect existing and future conditions.

The approach ends of Runway 14-32 are equipped with a precision approach path indicator (PAPI-P2L) with an approach slope of 4.0 degrees. As nighttime operations increase at the airport, the addittion of runway end identifier lights (REILs) is proposed. These lights are useful in locating the runway threshold during hours of darkness and periods of low visibility.

Runway Safety Areas

Runway Safety Area (RSA): A cleared, drained, graded, and preferably stabilized surface, symmetrically located around a runway. Under dry conditions an RSA should be capable of supporting the passage of aircraft without causing major damage to the aircraft.

FAA design standards for ARC B-I (small) facilities (with 3/4 mile or greater visibility minimums), such as South County Airport's Runway 14-32, specify that the runway safety area (RSA) be 120 feet wide the full length of the runway and extend 240 feet beyond each end of the runway. The runway at South County Airport currently meets or exceeds this standard. When the proposed

1,900-foot runway extension is constructed and the airport is upgraded to a ARC B-II facility, the RSA dimensions would increase to 150 feet wide for the full length of the runway and 300 feet beyond the ends of the runway. South County Airport has adequate space to provide full RSA requirements.

Object Free Areas

Object Free Area: (OFA): A two-dimensional surface surrounding runways, taxiways, and taxilanes. OFA clearing standards preclude parked aircraft or other objects, except for objects that need to be located within the OFA for air navigation or aircraft ground maneuvering. The OFA should be under the direct control of the airport operator.

Object Free Area (OFA) dimensions for an ARC B-I (small) facility with visibility minimums greater than ¾ mile are 250 feet wide for the full length of the runway and 240 feet beyond each runway end. The existing runway meets this design standard. When the airport becomes an ARC B-II facility, OFA dimensions would increase to 500 feet wide and 300 feet beyond the ends of the runway. There is sufficient space to accommodate these larger OFAs.

Obstacle Free Zones

Obstacle Free Zone (OFA): The airspace along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of function, In order to provide clearance protection for aircraft landing or taking off fro the runway, and for missed approaches

The dimensions of obstacle free zones (OFZs) vary depending upon the size of aircraft served and the visibility minimums of any associated instrument approach. The design aircraft for South County Airport is in ARC B-I (small) and the airport currently has a GPS-based nonprecision approach with minimums greater than 3/4-mile to Runway 32. An OFZ for a runway with these characteristics is 250 feet wide and extends 200 feet beyond each runway end. The single runway at South County Airport currently meets this standard. The planned extension and facility upgrade to ARC B-II would increase the OFZ width to 400 feet. There is adequate space to accommodate these larger OFZs.

Runway Protection Zone

Runway Protection Zone (RPZ): A trapezoidal area beyond a runway end in which land uses are limited to enhance the protection of people and property on the ground.

The runway protection zone (RPZ) for Runway 14-32 are 250 feet wide at its inner end, 1,000 feet long, and 450 wide at its outer end. About half of the RPZ area for Runway 14 lies on airport property. The balance of the RPZ area falls within the right-of-way of the West San Martin Avenue interchange. About 90% of the RPZ area for Runway 32 is on airport property. The balance encompasses the county's animal shelter. No easements exist.

The future RPZ for Runway 14-32 as an ARC B-II facility will be 500 feet wide at its inner end, 1,000 feet long, and 700 feet at its outer end. About 40% of the RPZ area for Runway 14 is off airport property and encompasses the West San Martin Avenue interchange. Nearly 30% of the RPZ area for Runway 32 is off

airport property and encompasses the Church Avenue interchange. The County of Santa Clara will need to acquire avigation easements for the portions of the future RPZ areas that extend off airport property.

FAR Part 77 Imaginary Surfaces

Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace*, identifies the airspace necessary to ensure the safe operation of aircraft to, from, and around airports. This airspace is defined for each airport by a series of imaginary surfaces. The dimensions and slopes of these surfaces depend on the configuration and approach categories of each airport's runway system. Generally, most critical among the FAR Part 77 surfaces are the approach surfaces.

South County Airport has one published instrument approach to Runway 32 (a GPS-based nonprecision approach). Runway 14 is currently a visual runway. It is anticipated that Runway 14 will also be served by a nonprecision instrument approach in the future.

Overpasses and onramps associated with Highway 101 underlie the approach surfaces for both Runway 14 and 32. Portions of these objects penetrate the the future approach surface (34:1 slope) for each runway. However, the runway ends have been set to ensure threshold siting surface clearance (20:1 slope) over these objects. Existing and future lateral clearances of 15 feet over Highway 101 is not provided. Obstruction lighting may be required if lower approach minimums are pursued.

Wind Indicators and Segmented Circle

There is currently one lighted wind cone on the airport. The wind cone is located at the center of the airport's segmented circle approximately 200 feet from the approach end of Runway 34 and 150 feet west of the runway centerline. A supplemental wind cone should be provided near the end of Runway 32 when the runway is extended.

TAXIWAY SYSTEM

Existing

South County Airport is currently an ARC B-I (small) facility. The runway centerline-to-parallel taxiway centerline dimension recommended by the FAA for an ARC B-I (small) facility is 150

feet. The taxiway centerline-to-parallel taxiway centerline separation standard is 69 feet. The taxiway width standard is 25 feet. The taxiway system at South County Airport meets or exceeds these standards.

Parallel Taxiways

The centerline of the full-length parallel taxiway (Taxiway A) serving the west side of Runway 14-32 is located 275 feet from the runway centerline and is 25 feet wide. Parallel Taxiway F is located 150 feet east of the runway centerline and is 30 feet wide.

Taxiway E, the parallel taxiway fronting the building area on the west side of the airfield, is located 213 feet from the centerline of parallel Taxiway A (487 feet from the runway centerline).

Exit Taxiways

Taxiway A is also an access/exit taxiway for Runway 32. This segment of the taxiway leading up to the holding bay for Runway 32 is 35 feet wide. Exit taxiways (A, B, C, and D) are located about every 1,000 feet to expedite aircraft leaving the runway. Exit Taxiways B and C are 25 feet wide and Taxiway D narrows down from 35 feet near the runway to 25 feet past the parallel taxiway (Taxiway A).

Future

As discussed in the preceding sections, ARC B-II aircraft (e.g., Cessna Citation Encore) are anticipated to operate at South County Airport within the 20-year planning period. Portions of the existing taxiway system will need to be upgraded to accommodate this class of aircraft.

The runway centerline-to-parallel taxiway centerline dimension recommended by the FAA for an ARC B-II facility is 240 feet. The taxiway centerline-to-parallel taxiway centerline separation standard is 69 feet. The separation standard from the taxiway centerline to a fixed or movable object is 65 feet. The taxiway width standard is 35 feet. In general, the taxiway system meets or exceeds most of these standards. However, some upgrades are required to bring the airport into full compliance with FAA design standards for an ARC B-II facility.

Parallel Taxiways

The full-length parallel taxiway (Taxiway A) serving the west side of Runway 14-32 exceeds ARC B-II runway-to-taxiway separation

standard by 35 feet. The existing width of Taxiway A is 10 feet less than the design standard. To minimize construction costs and to deepen the usable building area, it is recommeded that this additional width be provided on the inside portion of the taxiway (on the runway side) for the full length of Taxiway A. Additionaly, Taxiway A will need to be extended as part of the proposed runway extension project.

Parallel Taxiway F is located east of the runway. There is no existing need for this parallel taxiway, as there is no building area on the east side of the airfield. Additionally crossing an active runway at a nontowered airport is a safety concern. As the volume of aircraft operations increase and the airport has an air traffic control tower, Taxiway F could potentially be of some benefit. This parallel taxiway could be used to hold and separate aircraft performing flight training operations from transient aircraft and aircraft taxiing to/from the building area. However, at the point that the airport is upgraded to an ARC B-II facility, parallel Taxiway F would no longer meet the runway-to-taxiway separation standard. Therefore, eventural closure, and physical removal, of parallel Taxiway F is recommended.

However, there has been recent interest in using a portion of Taxiway F as a runway for ultralights. As ultralights have much slower cruising and landing speeds that standard aircraft, it is desirable to separate their operations. As an interim measure, use of Taxiway F would be acceptable. It would be important to ensure that no support vehicles crossed the runway to access Taxiway F. Over the longer term, if activity levels increase as forecast, Taxway F will need to be closed to all uses.

The parallel taxiway fronting the building area on the west side of the airfield (Taxiway E) would not accommodate ARC B-II aircraft in its present alignment. Wingtip clearance from the taxiway centerline to existing buildings, especially those within the FBO leasehold, is insufficient. Therefore, the parallel taxiway must be realigned 105 feet west of the centerline of parallel Taxiway A. Extension of parallel Taxiway E is recommended at the time that the proposed runway extension project is constructed.

Exit Taxiways

When the proposed runway extension is constructed, it will become appropriate to construct at least two additional exit taxiways. These taxiways will continue to be located about every 1,000 feet. Additionally, all taxiways will need to meet the FAA's taxiway width standard of 35 feet for an ARC B-II facility.

Taxiway Designation

At the time that the proposed runway extension and the two additional exit taxiways are constructed, renaming the taxiway system would be appropriate. Following the present naming convention, the changes indicated in the adjacent table would apply.

Existing Taxiway:	Future Taxiway:
None	Exit Taxiway A (Future End of Runway 32)
None	Exit Taxiway B
Exit Taxiway A	C
Exit Taxiway B	D
Exit Taxiway C	E
Exit Taxiway D	F
Parallel Taxiway E	W
None	Parallel Taxiway X
Parallel Taxiway A	Y
Parallel Taxiway F	Z

Aircraft Parking Limits

Aircraft parking limit (APL) lines are established to define where it is appropriate to park aircraft. Depending upon the configuration of an airfield, aircraft parking limit lines are set with respect to a runway or a parallel taxiway. As South County Airport has two full-length parallel taxiways (Taxiway A and E) on the west side of the runway, the APL is established with respect to the outboard parallel taxiway (Taxiway E).

The appropriate setback distance from a taxiway centerline to a parked aircraft is based upon the taxiway's object free area (OFA). Similar in concept to the runway OFA, the taxiway OFA defines an area that should be clear of objects that rise above the level of the runway. The size of the taxiway OFA is related to the wingspan of the critical aircraft.

The existing APL is set in accordance with FAA design standards for ARC B-I (small) aircraft. However, when the airport is upgraded to an ARC B-II facility, the APL will need to be set 65 feet from the centerline of the realigned parallel taxiway (Future Taxiway X). This setback will provide standard wingtip clearance for the future design aircraft, the Cessna Citation Encore. Creation of this taxiway will require elimination of one row of tiedowns along existing Taxiway E.

Building Restriction Line

The building restriction line (BRL) defines the limits of development of all on-airport structures, except facilities required by their function to be located near runways and taxiways. Although FAA offers only limited guidance on defining the appropriate location for building restriction lines, most airports use Part 77 surfaces. In the case of South County Airport, both taxiway-to-object separation standards and Part 77 surfaces are considered.

As noted above, the future taxiway-to-object separation distance for future Taxiway X is 66 feet. The future BRL is also set at this

point and provides FAR Part 77 clearance over a structure of up to 28 feet in height. The future APL and BRL are set 441 feet from the the centerline of Runway 14-32.

Hold Lines

The FAA requires hold lines on all taxiways intersecting with runways. The hold lines at the access/exit taxiways serving Runway 14-32 are set 125 feet from the runway centerline, consistent with ARC B-I (small) standards. At an ARC B-II facility, the FAA standard for hold lines is 200 feet. At the time that the runway is extended, the hold lines will need to be relocated the additonal 75 feet.

Holding Bays

The approach ends of Runway 14 and 32 are adequately served by holding bays (runup aprons). When the runway is extended, a new holding bay will need to be constructed at the future end of Runway 32 and the pavement of the old holding bay will need to be striped to indicate unusable pavement. Additionally, when the airport is upgraded to an ARC B-II facility and the required clear areas increase, the new holding bays at each end of the runway will need to be constructed 200 feet from the centerline of Runway 14-32.

Taxiway Marking and Lighting

The full-length taxiways (except for Taxiway F and portions of Taxiway E) and exit taxiways are equipped with medium intensity taxiway lighting (MITL). All taxiways are appropriately marked with centerline stripes and appropriate hold lines. Centerline stripes also exist on taxilanes throughout the building area. Striping of new taxiways should follow FAA standards. New parallel and exit taxiways should have medium intensity edge lights installed.

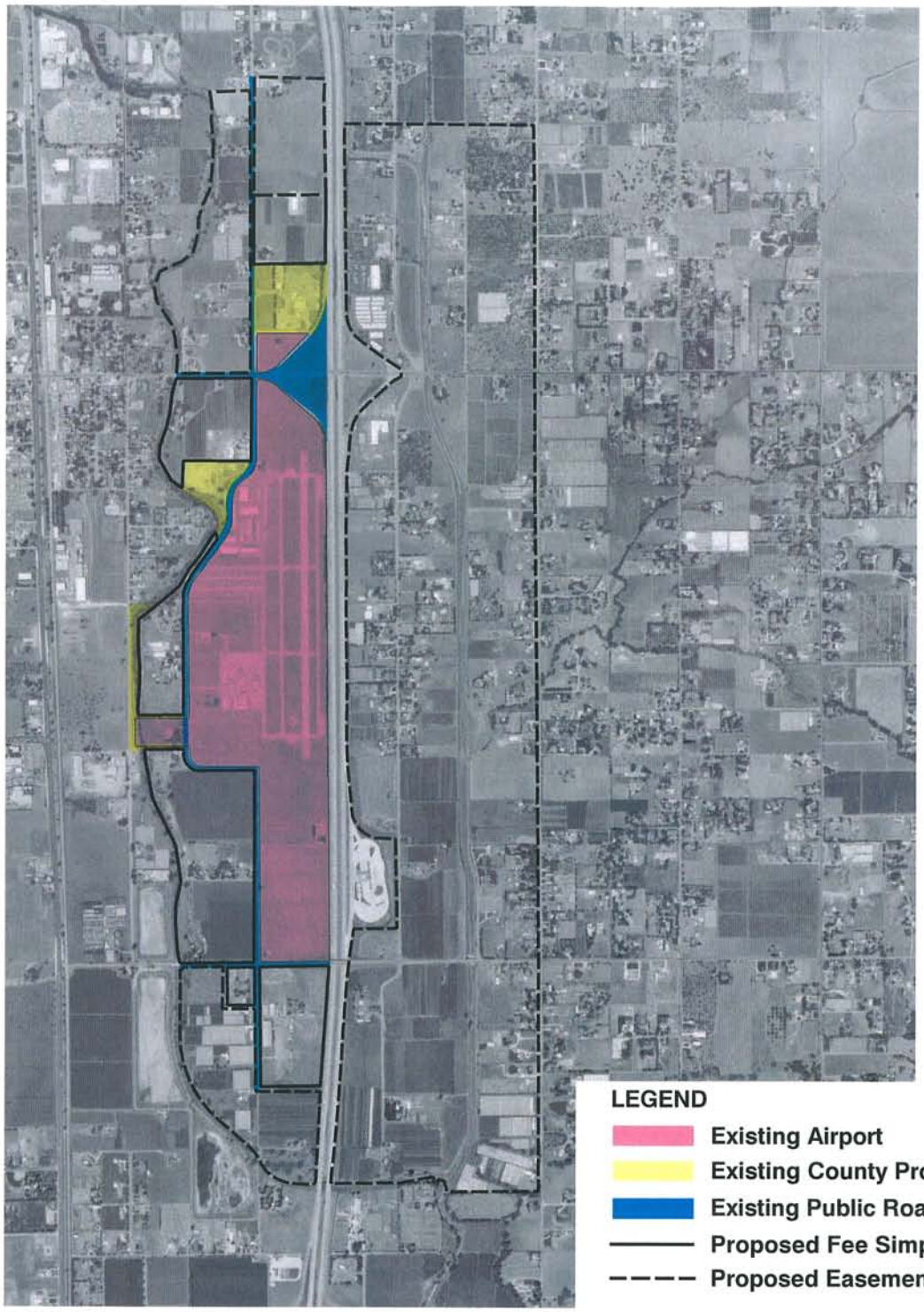
Signing

Only a few signs exist at South County Airport. It is recommended that the airport's sign system be upgraded to conform with FAA design standards as specified in Advisory Circular 150/5340-18C, *Standards for Airport Sign System*.

PROPERTY ACQUISITION

Historically airports have not acquired sufficient property to prevent development of incompatible uses in their vicinity. For most airports in the San Francisco Bay Area it is too late to rectify this problem. The cost and level of community disruption is too high. At South County Airport it remains possible to acquire sufficient property to protect approaches to the runway and buffer adjacent areas from the effects of airport operations.

Figure 3C presents the parcels (totaling approximately 332 acres) that are candidates for fee simple acquisition on the open market should they become available or through the use of eminent domain. Many of these parcels could be leased back to the owners following acquisition. However, the lease period and conditions should be crafted to ensure compatible uses and prevent conflicts with planned airport uses.



Source: Mead & Hunt, Inc. (May 2004)

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Figure 3C

Proposed Property Acquisition

South County Airport

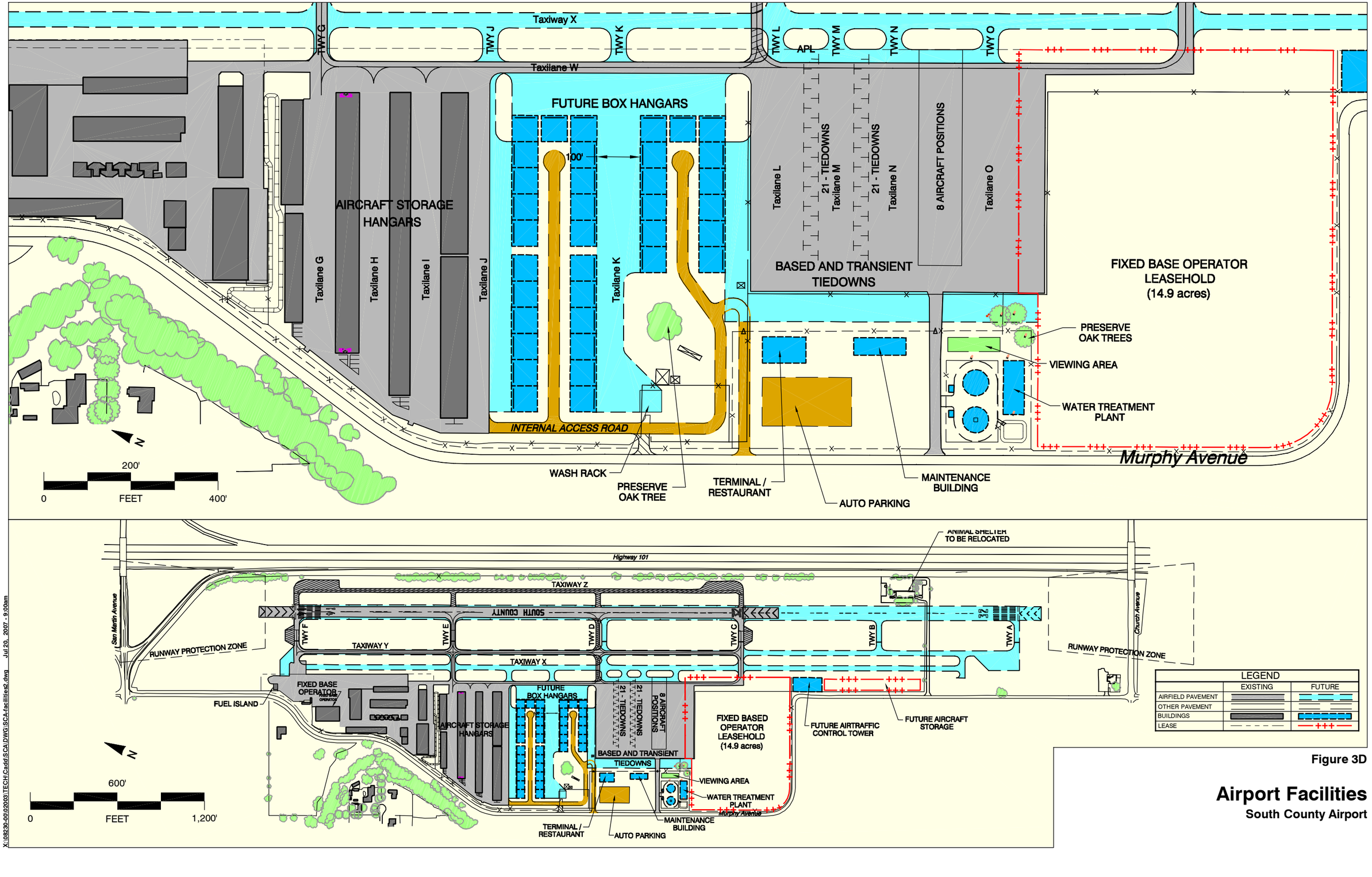

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Figure 3D

Airport Facilities

South County Airport

Chapter 4

Building Area Design

4

Building Area Design

OVERVIEW

The building area of an airport encompasses all of the airport property not devoted to runways, major taxiways, required clear areas, and other airfield-related functions. This chapter examines the factors that affect the siting of future building area facilities at South County Airport and alternative ways of accommodating projected demand. The focus is on providing direction for the appropriate expansion and use of the core building areas of the airport. The various design issues associated with South County Airport are discussed in the sections that follow. The Building Area Plan (Figure 3D) provides a snapshot of the airport at the end of the 20-year planning period.

The principal building area is located west of Runway 14-32 and backs to Murphy Avenue. All aircraft storage hangars and tiedown spaces, a fuel island, and fixed base operator (FBO) buildings are located within this area. Construction of 100 County-owned hangars (91 T-hangars and 9 box hangars) is currently underway in this area.

Fixed Base Operator (FBO): A business that provides aviation services other than scheduled passenger service. Commonly, services provided by FBOs include: flight training, aircraft rental, fueling, maintenance, and painting.

The *Master Plan* anticipates aviation-related development on the airport property south of the current building area to accommodate additional aircraft storage hangars, transient parking, and fixed base operator (FBO) facilities. Development in this area would also include a new terminal building, maintenance building and vehicle parking.

Design Factors

Many factors influence the planning and, later, the development decisions associated with South County's principal building area. Most of these factors can be grouped under five basic headings:

- **Demand**—The demand for additional building area facilities at South County Airport is forecast to be significant over the next 20-year planning period. As documented in Chapter 2, the number of based aircraft is anticipated to increase to 418.

  The types of aircraft currently based at South County Airport are primarily single-engine and piston-powered aircraft. It is anticipated that this type of aircraft will continue to be the most prevalent users of the airport. Increased use by turboprops and small to mid-sized corporate jets is also anticipated over the forecast period. Small to mid-sized corporate jets, in this context, means those weighing between 20,000 pounds and 35,000 pounds. The airport's critical aircraft, the Citation Encore, and the larger Hawker 800XP are examples of these types of aircraft.

  Demand for aircraft storage facilities will be market driven and therefore the timing of development is uncertain. It is anticipated that most of the demand for aircraft storage will be met by the Fixed Base Operators (FBO) on their leaseholds, but some of the demand for additional hangars may be met by the County if warranted by market conditions and consistent with the Business Plan for the airport.

Citation Encore

- **Setback Distances**—The interior boundary of the airport building area is determined in large part by the required setbacks from the nearest runway and taxiways. Based upon design criteria discussed in the preceding chapter, the following design criteria are recommended:
  - A minimum of 445 feet from the centerline of Runway 14-32 to buildings located on either side of the runway.
  - A minimum of 66 feet from the centerline of taxiways to fixed or movable objects.
  - A minimum of 100 feet between facing medium box hangars (60 foot depth).
  - A minimum of 70 feet between facing T-hangars or small box hangar (50 foot depth).

Taxiway — A defined path, from one part of an airport to another, selected or prepared for the taxiing of aircraft.

Taxilane — The portion of the aircraft parking area used for access between taxiways, aircraft parking positions, hangars, fixed base operators, etc.

- **Existing Facilities**—With the exception of the County hangar project currently under construction, all existing airport

facilities are concentrated in the northern quadrant of the airport and provided by the sole FBO. Buildings located within the FBO area are capable of continued use throughout the 20-year time horizon of this plan. Most of the central apron will continue in its present role. Some reconfiguration will be needed to accommodate the pattern of building in adjacent areas.

- **Accessibility**—An important design consideration is the ease of access to individual portions of the building areas from both the taxiway system and public roads. At South County Airport, parallel Taxiway E provides access to the core building area. Taxiway E does not accommodate ARC B-II aircraft in its present alignment; the required wingtip clearance from existing buildings is insufficient. Taxiway E will need to be realigned west of Taxiway A to provide the required setback for ARC B-II. It is also recommended that Taxiway A and E be extended when Runway 32 is extended further south. As the volume of operations grows, two parallel taxiways will be needed to accommodate the flow of arriving and departing aircraft.

  Vehicle access to the airport is from two entrances from Murphy Avenue. The first access point is located at the entrance to the existing FBO. The other is located midfield and connects from Murphy Avenue to the main apron. Access to new development in the southwest quadrant of the airport would be provided from Murphy Avenue. This central access point will provide access to hangars in the central section of the building area, as well as based and transient tiedowns. New FBOs will have entrances that connect directly to Murphy Avenue.

- **Development Staging**—Another important factor in the preparation of a building area plan is the timing of future development. The object is to have a plan that is cost-effective and flexible enough to adapt to changes in the type and pace of facility demand.

  The linear configuration of the remaining developable area makes it simple for future County and private development to proceed independently. The ability to access Murphy Avenue along the entire perimeter adds to the flexibility.

PRINCIPAL BUILDING AREA FEATURES

Aircraft Storage and Parking

Pursuant to Chapter 2, Roles & Forecasts, which included demand forecasts for aircraft basing capacity at the three County airports and recommendations relating to the role and basing capacity to be assigned to each airport, South County Airport can be expected to accommodate 418 based aircraft by the year 2022. Therefore, the Building Area Plan provides for sufficient County-owned and FBO-owned hangars and tiedowns for this number of based aircraft.

Hangars

Collectively, there are 155 hangars located within the north-side building area, 55 of which are owned by the FBO on its leasehold. The 100 County-owned hangars under construction south of the FBO area comprise the balance. About 36 box hangars (60-foot square) can be accommodated immediately south of the new County-owned hangars and additional hangars can be accommodated on areas designated for new FBO leaseholds.

Tiedowns

Approximately 35 tiedowns are provided by the existing FBO. Ninety County-owned tiedown spaces are located on the main apron located west of Runway 32. However, due to weak demand, most of the existing tiedown area is being used for temporary storage of modular buildings in order to generate revenue. The proposed redesign of this central apron will provide 42 tiedowns and parking for up to eight transient business aircraft.

Fixed Base Operators

Fixed base operators (FBOs) constitute the commercial side of general aviation business. They may provide a wide variety of facilities and services (e.g., aircraft rental and charter, flight instruction, aircraft fueling, and based aircraft hangar and tiedown space rental) for pilots and their aircraft. Busy airports usually have multiple FBOs, while smaller ones may have only one or none. The primary FBO at an airport commonly offers many of these facilities and services; specialized FBOs may supply just one.

South County Airport currently has one FBO, located in the north building area. The FBO provides flight training, fuel, aircraft parking

spaces and aircraft maintenance. Several new buildings were recently constructed within the FBO area. It is anticipated that the current role of the FBO will continue throughout the 20-year planning period.

Further enhancement of the existing FBO facilities is limited due to lack of additional space on the leasehold. The airport's long-term development plan includes 14.9 acres designated for new FBO leaseholds as well as 3.1 acres for future aircraft storage south of the air traffic control tower (18 acres total). It is anticipated that a total of about 142 aircraft storage hangars and tiedowns will be accommodated on this 18 acres.

Airport Traffic Control Tower

Airport traffic control towers are established at airports as they become busy enough to benefit significantly from these services. South County Airport is anticipated to eventually qualify for establishment of an airport traffic control tower. Although this will be many years in the future, a site needs to be reserved for this use.

The runway, hold aprons, parallel taxiways, and other major taxiways and taxilanes need to be visible from the airport traffic control tower. The tower location should also provide clear views of approaches to the runway. The optimum site is located south of the future FBO leaseholds. This location would provide clear views of the major airfield components, including the transient apron. Views from this site would not be affected by proposed future development.

SUPPORTING FACILITIES

General Aviation Terminal Building

This plan envisions construction of a two-story, 12,000 square foot general aviation terminal building within the 20-year planning horizon to house office space for County airport staff as well as a pilots' flight planning area, restrooms and potentially a food service operation. A suitable site for the terminal building would be to the west of the apron, adjacent to the proposed maintenance building. This location provides good visibility of aircraft for public enjoyment, as well as convenience for pilots who either base their aircraft or who are temporarily parked on the transient ramp.

Automobile Parking

An automobile parking lot will be needed to support the planned terminal facility. The plan includes provision for a lot with about 60 parking spaces. The parking requirements should be refined as part of the programming phase for the new building.

Parking for aircraft owners based in County-owned hangars is provided several ways. Many owners will prefer to park their vehicles in their hangar. Parking spaces are provided at the west end of the T-hangars. Parking will be available behind the proposed box hangars. Each FBO will need to make provision for automobile parking for aircraft owners based on their leaseholds.

Maintenance Building

Airfield maintenance is an essential aspect of operation of an airfield. Unpaved areas need to be mowed to minimize fire danger. County-owned buildings (including hangars) will need to be maintained. A facility to house the required equipment and supplies is planned to be constructed west of the central apron. A floor area of 6,000 to 8,000 square feet has been set aside for this building.

Aircraft Fuel Storage and Dispensing

The current FBO supplies low-lead avgas and jet fuel. Self-serve fueling is available 24 hours per day by credit card. Fueling by truck is also available from 7:30 a.m. to 5:00 p.m. The existing location is well sited to serve current fuel demand. However, as the central and southern portions of the airport develop, it is likely that a new full-service FBO would provide both avgas and jet fuel. These new fuel facilities will be located on the FBO's leasehold since it is not County practice to provide fueling services.

Aircraft Wash Racks

Presently, the airport does not have an aircraft washing facility. The wash rack facility should be designed to meet today's standards for run-off effluence control. A centrally located wash rack site is identified on the Building Area Plan.

Airfield Security

Events in the last few years have dramatically increased public and agency concerns over aviation security. Although most attention is

focused on airports with scheduled passenger service, all airports can expect security requirements to be increased. New guidance for general aviation airports has recently been released and contains recommendations for physical security improvements related to controlling entry to the airfield.

The principal form of security at most general aviation airports is perimeter fencing and controlled-access gates. For security purposes, and for safety as well, fencing should keep unauthorized individuals and, especially, vehicles from accessing the aircraft operating areas of the airfield and building area.

At South County Airport, the perimeter is completely fenced. One gate secures access on the north side of the airport, west of the FBO fuel island. Another gate is a manually operated gate located west of the administration building, securing access to the new hangar development area. This will be converted to a card gate in the future.

When the new terminal building is constructed, the focus of airport activity will shift to the south. A new road will provide public access from Murphy Avenue to the public parking lot. An access gate at the end of the entrance road will provide authorized individuals access to the airfield. A fence will divide the entrance road and an internal road that will provide access to the County-owned hangars and transient parking. The existing point of access to the hangars will be removed and shifted to this central point of access.

It is possible that future guidance from the U.S. Transportation Security Agency or Federal Aviation Administration will require additional changes to the airfield. However, until new guidance is issued, specific requirements for both the County and fixed base operators remain uncertain.

Public Viewing Area

Development east of the existing water tank facility is limited by several oak trees. Therefore, the County has designated this area as a public viewing area. The location will provide a clear view of activity on the transient apron.

Detention Basins

Runoff from storm water can create significant drainage problems at an airport if not managed properly. In 1996, the airport installed a detention basin designed for storm water containment. The principal purpose is to hold runoff and release it at a controlled rate into the existing stream network to prevent flooding. The existing detention

basin was expanded in February 2004 to retain run-off from new impervious surface created as part of the recent hangar construction project. Further development on the airfield will require additional detention basins to control storm water. A comprehensive drainage study is needed to define future needs.

Water Storage Tanks

A site for two water storage tanks has been designed. These storage tanks are necessary to support fire flows for airport facilities.

Waste Water Treatment

A septic tank system is currently used to dispose of the limited amount of waste water generated on the airport. Construction of a terminal building and new FBO facilities are anticipated to require installation of a package treatment plant on the airport. This plant will be sited in the terminal area near where demand will be highest.

Chapter 5

E16 Business Plan

5

E16 Business Plan

INTRODUCTION

Just as previous chapters have outlined plans for the airport's physical development, this chapter outlines a plan for the airport's financial development. More specifically, this chapter will:

- Present an overview and analysis of the Airport Enterprise Fund (AEF) and the airport's finances;
- Identify the capital projects and local funding required to implement the portions of the Master Plan that are not eligible for FAA funding; and
- Identify issues relating to various parcels of airport real property.

AIRPORT ENTERPRISE FUND OVERVIEW

Master Plan Guiding Principles

At the beginning of the planning process, the Board adopted principles to guide the development of the Master Plan. These Guiding Principles include the following:

> *"The Airport Enterprise Fund should be self-sustaining without subsidy from the General Fund. Revenue from fees and charges, state and federal grants and other sources should be sufficient to fund operating and maintenance costs, capital improvements and an appropriate level of reserves."*

Since the creation of the Roads & Airports Department, the AEF has generated sufficient operating revenue to fund operating expenses. Capital projects have been funded on a pay-as-you-go basis using primarily federal and state grants, the one notable exception being the South County Airport Hangar Project, which was ineligible for grant funding and was therefore bond-funded. Therefore, the AEF has been self-sustaining financially even prior to the Board's formal adoption of such a principle. Even in the unusual case that occurred in the early 1990s where the County bought out two RHV leaseholders in order to settle litigation brought by the lessees and the General Fund made loans to the AEF to fund the buyouts, the airport generated sufficient revenue from the acquired leasehold assets to pay back the loans with interest.

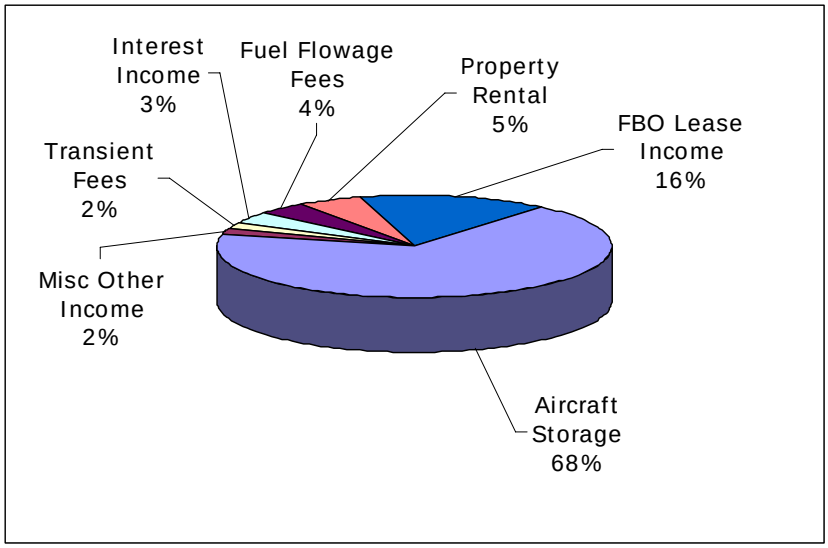


Figure 5A: Airport Enterprise Fund Revenue

AEF Revenues

Total annual AEF revenue is approximately $2.6 million. Figure 5A above presents the AEF revenue categories and shows that 68% of AEF operating revenue is generated from County-owned aircraft storage spaces (i.e. hangars, shelters and tiedowns). Although demand for aircraft storage is projected to remain strong in the foreseeable future, the AEF's reliance on this revenue source makes it vulnerable to downturns in the general aviation market.

The next largest revenue component (16%) is lease revenue from the Fixed Base Operators (FBO). The FBO leases specify an annual ground rent of 8.5% of the fee simple value of the leasehold premises (not including improvements) and provide for periodic adjustments pursuant to a reappraisal of the premises. Given the long-term nature of the FBO leases, the revenue from this source

is essentially fixed aside from the occasional minor adjustment to the lease rate.

All other revenue categories including property rental, fuel flowage fees, transient aircraft fees and interest income collectively generate only 16% of AEF revenues.

Reid Hillview Airport generates approximately 56% of the total AEF revenue - far more than Palo Alto Airport (PAO) and South County Airport (E16), primarily due to the income from the 145 County-owned hangars. Prior to the South County Airport Hangar Project it was the only one of the three airports to have County-owned hangars. Historically, RHV revenue has exceeded expenditures and the surplus has been used to subsidize operations at PAO and E16.

AEF Expenditures

Figure 5B below presents the AEF expenditure categories and shows that 45% of AEF expenditures are staffing costs (salaries and benefits). Services and supplies account for 34% of AEF expenditures, while the local funding component of capital projects represents 6% of AEF expenditures. Debt service on bonds issued to fund the South County Airport Hangar project and to retire the General Fund loans mentioned above makes up 11% of AEF expenditures.

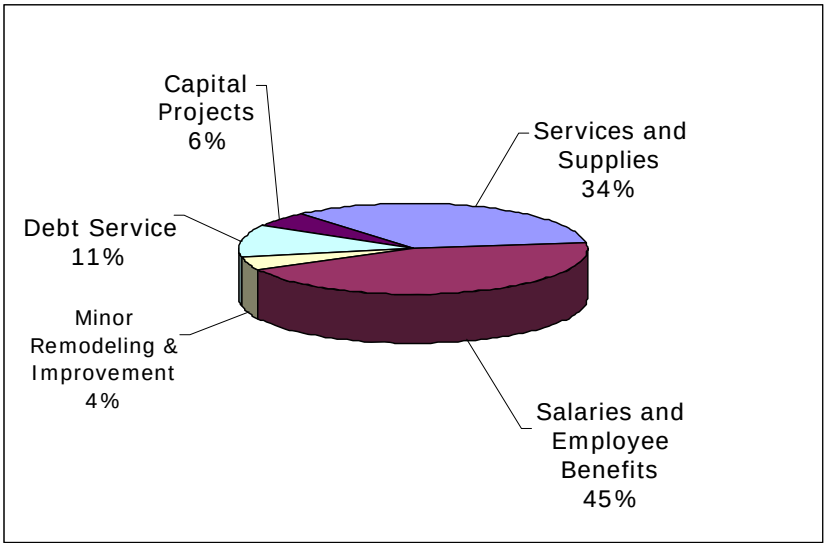


Figure 5B. Airport Enterprise Fund Expenditures

Retained Earnings

Cash flow from revenues and expenditures generally is not uniform and predictable. The AEF Fund Balance (called "Retained Earnings" since the AEF is an enterprise fund) dampens the effect of the irregular cash flow. The unencumbered portion of the Retained Earnings balance represents the AEF's "rainy day" fund and is a measure of the AEF's financial health.

The projected AEF unencumbered Retained Earnings balance as of the end of FY 2005 is $1,700,000. A level of unencumbered Retained Earnings equal to at least one year's operating expenses is advisable. Upon completion of the South County Airport Hangar Project, the AEF will be in a position to begin increasing the level of Retained Earnings.

Long-term Debt

The AEF carries $6,115,000 in long-term bond debt (projected as of June 30, 2005) of which $5,576,000 is attributable to the South County Airport Hangar project and $539,000 is attributable to the refinancing of the General Fund loans discussed above. The current long-term debt level is approximately 1.9 times annual revenue and 3.6 times the level of unencumbered Retained Earnings.

SOUTH COUNTY AIRPORT REVENUE AND EXPENDITURES

Although the AEF captures all airport finances in a single budget unit, the revenue and expenses associated with each of the three airports are tabulated for internal management accounting purposes. Revenue and expenses directly attributable to each airport such as FBO lease revenue, aircraft storage space rental revenue, operations staff salaries, etc. are easily identified. General and administrative expenses not attributable directly to an individual airport (insurance, management staff salaries, etc.) are captured in an expense pool and prorated to each airport based on a weighted formula that uses cost drivers such as the number of based aircraft, number of aircraft operations and number of major facilities.

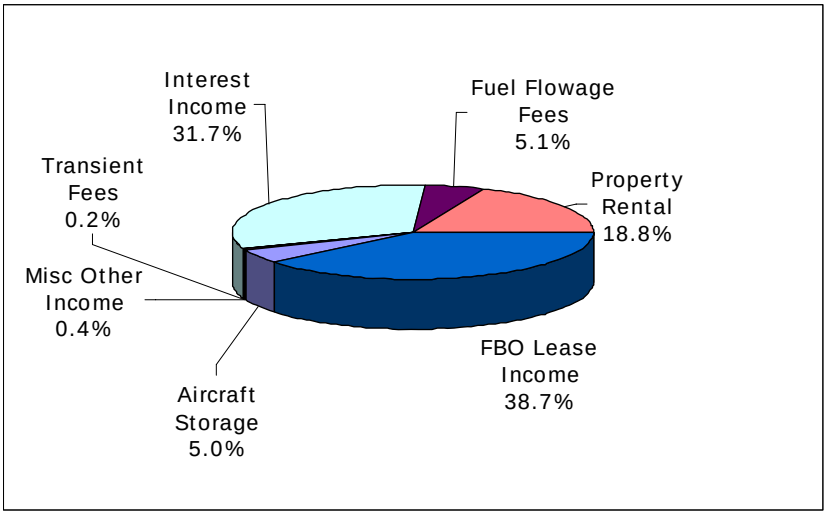


Figure 5C: South County Airport Revenue

E16 revenue is shown in Figure 5C. Including projected revenue from the South County Airport Hangar Project mentioned above, the airport generates approximately 22% of the total AEF operating revenue. The new hangars and the small number of occupied tiedowns comprise 5% of E16 revenue. Revenue from the new hangars will help enable the airport to become consistently self-sustaining financially, which in turn will increase the portion of the RHV operating surplus available for reinvestment at RHV.

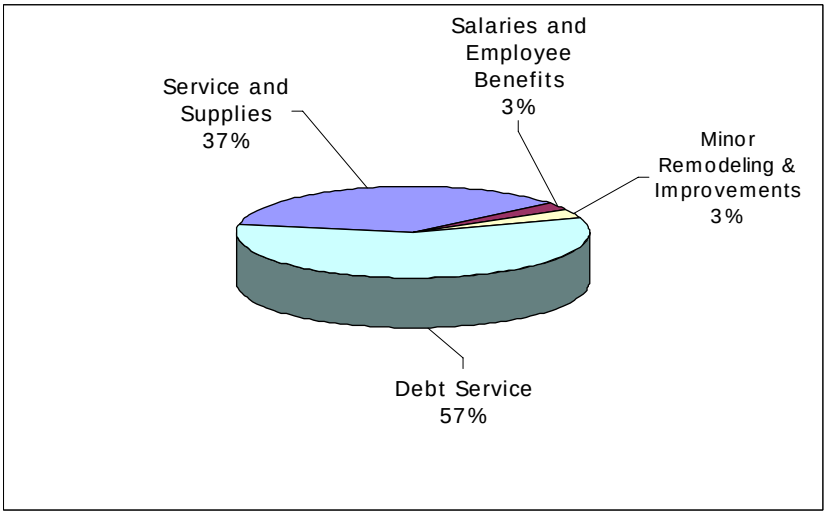


Figure 5D: South County Airport Expenditures

Expenditures are shown in Figure 5D. The largest component of E16 expenditures is debt service related to the hangar project.

AIRPORT CAPITAL IMPROVEMENT PLAN (ACIP)

This section examines both AIP-funded and locally-funded capital improvements identified in the Airfield Design and Building Area Design chapters of the Master Plan.

FAA Airport Improvement Program - Funded Capital Projects

All projects identified in Chapter 3, Airfield Design (including property acquisition around the airport), as well as airfield-related repair projects are eligible for FAA funding under the Airport Improvement Program (AIP). Currently, AIP-eligible projects approved by the FAA receive 95% federal funding and are also eligible for an additional 2.5% state match, subject to availability of funds. Therefore, the local match required for AIP projects can be as low as 2.5%. However, the federal percentage is subject to change whenever the AIP is periodically reauthorized. Previously, the AIP provided 90% funding and there is the possibility that the program may revert to this funding level when the next reauthorization occurs.

A small number of AIP-eligible projects are also contained in Chapter 4, Building Area Design. These projects are primarily related to physical security.

Since AIP-eligible projects are identified in Chapters 3 and 4, a discussion of these projects will not be repeated here.

Locally - Funded Capital Projects

This section discusses the funding requirements for projects that are not eligible for AIP funding and therefore must be funded entirely with local funds. Most of the airport's future utility and building infrastructure falls into this category. The following projects identified in Chapter 4, Building Area Design, will require local funding:

- 36 additional box hangars
- Terminal building and parking lot
- Additional water storage tank
- Maintenance building
- Storm water detention basins
- Waste water treatment plant

As a practical matter, the projects will be implemented in phases over the life of the Master Plan in conjunction with the airfield de-

velopment and the increase in the number of based aircraft as development in the San Jose – Gilroy corridor generates demand for an airport capable of handling corporate aircraft. Phasing the projects will also help facilitate a "pay-as-you-go" strategy. Projected net revenue from 36 future hangars and lease revenue from the future second FBO are two sources of potential funding.

EXISTING AND FUTURE FBO LEASEHOLDS

There is one existing FBO leasehold at E16, resulting in a ratio of based aircraft per FBO slightly lower than other general aviation airports in Northern California with 200 or more based aircraft (see Table 5A).

Chapter 4 designated a portion of the airport property for lease to a second FBO as the airport grows. Upon full implementation of the Master Plan, the ratio of FBOs to based aircraft will be 209:1, which is nearly identical to the current ratio.

Ratio of FBOs to Based Aircraft at Northern California Airports

AIRPORT	BASED AIRCRAFT	FBOs	RATIO OF BASED AIRCRAFT TO FBOs
South County Airport*	**207**	**1**	**1 : 207**
Charles M. Schulz - Sonoma County Airport	380	1	1 : 380
Sacramento Executive Airport	365	1	1 : 365
Watsonville Municipal Airport	331	1	1 : 331
Livermore Municipal Airport	604	2	1 : 302
Gnoss Field Airport [Novato]	301	1	1 : 301
Buchanan Field Airport	591	2	1 : 296
Palo Alto Airport	524	2	1 : 262
San Carlos Airport	503	2	1 : 252
Hayward Executive Airport	444	2	1 : 222
Reid-Hillview Airport	687	9	1 : 76

* Includes 107 based aircraft and 100 (future) new hangar occupants.

Table 5A: Ratio of FBO's to Based Aircraft

OTHER REAL PROPERTY ISSUES

This section discusses issues related to various airport properties. While not a comprehensive analysis, this section does address major issues to be considered with respect to the:

Murphy Ave. Property

The airport property on the west side of Murphy Avenue is not required to implement the Airfield Design and Building Area Design elements of the Master Plan. The previous 20-year below-market

lease to the Lions Club has expired and current FAA regulations require fair market rent for leases of airport real property. Roads & Airports Department staff is currently developing a Request for Proposals for review and approval by the Board of Supervisors to solicit lease proposals for the site. A long term lease should be avoided in order to keep the property available for potential relocation of the County animal shelter as discussed below.

County Animal Shelter

The County Animal Shelter, operated by the Department of Agriculture and Resource Management, must be relocated eventually to accommodate the planned runway extension. The Murphy Avenue property discussed above should be considered as a potential site to house the shelter when the runway extension project is ultimately implemented.

SUMMARY

- The AEF has been financially self-sustaining since at least the inception of the Roads & Airports Department. Operating revenue has been sufficient to fund operating expenses including the local match required for grant-funded capital projects, which have been implemented on a pay-as-you-go basis.
- Approximately three-quarters of AEF operating revenue is derived from the rental of County-owned aircraft storage spaces, which makes the AEF vulnerable to fluctuations in the general aviation market. Most other components of AEF revenue such as existing FBO lease revenue and fuel flowage fees present little opportunity for short-term growth.
- The unencumbered Retained Earnings balance should be increased to the equivalent of one year of operating expenses.
- South County Airport infrastructure projects should be funded on a pay-as-you-go basis to the extent practicable. All airfield-related projects identified in Chapter 3 are eligible for FAA funding. Revenue from the 36 future hangars and lease revenue from the future second FBO are two sources of potential funding for projects ineligible for FAA funding.
- The Murphy Avenue parcel should be re-leased at current fair market rates to generate revenue for the airport and should be considered as a potential site to house the County animal shelter when the runway extension project is implemented.

Appendices

COMPATIBILITY PLANNING

Compatibility Concerns

Ensuring the maximum level of compatibility between an airport and surrounding land uses is essential. The land use compatibility concerns for airports fall into four functional categories. These categories are:

- Noise: Generally, defined by cumulative noise exposure contours describing noise from aircraft operations near an airport.
- Overflight: The impacts of routine aircraft flight over a community.
- Safety: From the perspective of minimizing the risks of aircraft accidents beyond the runway environment.
- Airspace Protection: Accomplished by limits on the height of structures and other objects in the airport vicinity and restrictions on other uses which potentially pose hazards to flight.

For each compatibility category, four features are outlined below:

- Compatibility Objective: The objective to be sought by establishment and implementation of the compatibility policies;
- Measurement: The scale on which attainment of the objectives can be measured;
- Compatibility Strategies: The types of strategies which, when formulated as compatibility policies, can be used to accomplish the objectives; and
- Basis for Setting Criteria: The factors which should be considered in setting the respective compatibility criteria.

Noise

Noise is one of the most basic airport land use compatibility concerns. Moreover, at major airline airports, many busy general aviation airports, and most military airfields, noise is usually the most geographically extensive form of airport impact.

- **Compatibility Objective** — The clear objective of noise compatibility criteria is to minimize the number of people exposed to frequent and/or high levels of airport noise capable of disrupting noise-sensitive activities.
- **Measurement** — For the purposes of airport land use compatibility planning, noise generated by the operation of aircraft to, from, and around an airport is primarily measured in terms of the cumulative noise levels of all aircraft operations. In California, the cumulative noise level metric established by state regulations, including for airport noise, is the

Community Noise Equivalent Level (CNEL). This metric provides a single measure of the average sound level in decibels (dB) to which any point near an airport is exposed. To reflect an assumed greater community sensitivity to nighttime and evening noise, events during these periods are counted as being louder than actually measured. Cumulative noise levels are usually illustrated on airport area maps as contour lines connecting points of equal noise exposure. Mapped noise contours primarily show areas of significant noise exposures—ones affected by high concentrations of aircraft takeoffs and landings. Noise contours for the current, and five- and twenty-year forecast activity levels are presented in Appendix D.

- **Compatibility Strategies** — The basic strategy for achieving noise compatibility in an airport vicinity is to limit development of land uses which are particularly sensitive to noise. The most acceptable land uses are ones which either involve few people (such as most forms of agriculture) or generate significant noise levels themselves (such as other transportation facilities or some industrial uses). Where historical development makes this infeasible (as at South County), noise insulation of the most effective means of reducing noise impacts.

- **Basis for Setting Criteria** — Compatibility criteria related to cumulative noise levels are well-established in federal and state laws and regulations. The basic state and federal criterion sets a CNEL of 65 dB as the maximum noise level normally compatible with urban residential land uses.

Overflight

Experience at many airports has shown that noise-related concerns do not stop at the boundary of the outermost mapped CNEL contour. Many people are sensitive to the frequent presence of aircraft overhead even at noise low levels. These reactions can mostly be expressed in the form of *annoyance*.

At many airports, complaints often come from locations beyond any of the defined noise contours. Areas that underlie common flight patterns are likely places for this to occur. The basis for such complaints may be a desire and expectation that outside noise sources not be intrusive—or, in some circumstances, even distinctly audible—above background noise levels.

While these impacts may be important community concerns, the question of importance here is whether any land use planning actions can or should be taken to mitigate the impacts or otherwise address the concerns. There is typically little that can be done to modify the pattern of air traffic close to the airport; FAA procedures dictate there location. Funding for noise insulation outside of the 65 CNEL contour is commonly not available. Even if it was, the concern would not address annoyance when residents are outdoors

These limitations notwithstanding, there are steps which ALUCs can and should take to help minimize overflight impacts.

- **Compatibility Objective** — In an idealistic sense, the compatibility objective with respect to overflight is the same as for noise: avoid land use development which can lead to annoyance and complaints. However, given the extensive geographic area over which the impacts occur, this objective is unrealistic except in rural areas and relatively close to the airport. A more realistic objective therefore might be to promote conditions under which annoyance will be minimized. Possible strategies in this regard are described below.

- **Measurement** — Determining where to draw boundaries around areas of potentially significant overflight noise exposure is difficult because these locations extend beyond the well-defined CNEL contours. The general locations over which aircraft regularly fly as they approach and depart an airport are thus a better indicator of overflight annoyance concerns. For general aviation airports, such locations include areas beneath the standard airport traffic patterns, the portions of the pattern entry and departure routes flown at normal traffic pattern altitude, and perhaps additional places which experience a high concentration of overflights. Also, at all types of airports, common IFR arrival and departure routes can produce overflight concerns, sometimes many miles from the airport.

- **Compatibility Strategies**—As noted above, the ideal land use compatibility strategy with respect to overflight annoyance is to avoid development of residential and other noise-sensitive uses in the affected locations. To the extent that this approach is not practical, two different (but not mutually exclusive) strategies are apparent.
  - One strategy is to help people with above-average sensitivity to aircraft overflights—people who are highly *annoyed* by overflights—to avoid living in locations where frequent overflights occur. This strategy involves making people more aware of an airport's proximity and its current and potential aircraft noise impacts on the community before they move to the area. This can be accomplished through buyer awareness measures such as dedication of avigation or overflight easements, recorded deed notices, and/or real estate disclosure statements. In new residential developments, posting of signs in the real estate sales office and/or at key locations in the subdivision itself can be further means of alerting the initial purchasers about the impacts (signs are of little long-term value, however).
  - A second strategy is to minimize annoyance by reducing the intrusiveness of aircraft noise above normal background noise levels. In this regard, multi-family residences—because they tend to have comparatively little outdoor living areas, fewer external walls through which aircraft noise can intrude, and relatively high noise levels of their own—are preferable to single-family dwellings. However, there may be limited potential for multi-family residences in the vicinity of South County Airport.

- **Basis for Setting Criteria**—The basis for setting criteria is primarily the experience and knowledge that airport proprietors and airport land use commissions have about the noise sensitivity of the specific communities involved. This information can come from discussions held during development of an airport master plan, noise complaints, or other interactions with area residents.

Safety

Compared to noise, safety is in many respects a more difficult concern to address in airport land use compatibility policies. A major reason for this difference is that safety policies address uncertain events which *may occur* with *occasional* aircraft operations, whereas noise policies deal with known, more or less predictable events which *do occur* with *every* aircraft operation. Because aircraft accidents rarely happen and the time, place, and consequences of their occurrence cannot be predicted, the concept of *risk* is central to the assessment of safety compatibility. From the standpoint of land use planning, two variables determine the degree of risk posed by potential aircraft accidents:

- *Accident Frequency:* Where and when aircraft accidents occur in the vicinity of an airport; and
- *Accident Consequences:* Land uses and land use characteristics which affect the severity of an accident when one occurs.

- **Compatibility Objective**—The overall objective of safety compatibility criteria is simply to minimize the risks associated with potential aircraft accidents. There are two components to this objective, however:
  - *Safety on the Ground:* The most fundamental safety compatibility component is to provide for the safety of people and property on the ground in the event of an aircraft accident near an airport.
  - *Safety for Aircraft Occupants:* The other important component is to enhance the chances of survival of the occupants of an aircraft involved in an accident which takes place beyond the immediate runway environment.

- **Measurement**—In measuring the degree of safety concerns around an airport, the frequency component of risk assessment is most important: what is the potential for an accident to occur? As mentioned above, there are both *where* and *when* variables to the frequency equation:
  - *Spatial Element:* The spatial element describes *where* aircraft accidents can be expected to occur. Of all the accidents which occur in the vicinity of airports, what percentages occur in any given location?
  - *Time Element:* The time element adds a *when* variable to the assessment of accident frequency. In any given location around a particular airport, what is the chance that an accident will occur in a specified period of time?

- **Compatibility Strategies**—Safety compatibility strategies focus on the *consequences* component of risk assessment. Basically, the question is: what land use planning measures can be taken to reduce the severity of an aircraft accident if one occurs in a particular location near an airport? Although there is a significant overlap, specific strategies must consider both components of the safety compatibility objective: protecting people and property on the ground; and enhancing safety for aircraft occupants. In each case, the primary strategy is to limit the intensity of use (the number of people concentrated on the site) in locations most susceptible to an off-airport aircraft accident. This is accomplished by:
  - *Density and Intensity Limitations:* Establishment of criteria limiting the maximum number of dwellings or people in areas close to the airport is the most direct method of reducing the potential severity of an aircraft accident.
  - *Open Land Requirements:* Creation of requirements for open land near an airport addresses the objective of enhancing safety for the occupants of an aircraft forced to make an emergency landing away from a runway.
  - *Highly Risk-Sensitive Uses:* Certain critical types of land uses—particularly schools, hospitals, and other uses in which the mobility of occupants is effectively limited—should be avoided near the ends of runways regardless of the number of people involved. Aboveground storage of large quantities of highly flammable or hazardous materials also should be avoided near airports.

- **Basis for Setting Criteria**—Setting safety compatibility criteria presents the fundamental question of what is safe. Expressed in another way: what is an *acceptable risk*? In one respect, it may seem ideal to reduce risks to a minimum by prohibiting most types of land use development from areas near airports. However, there are usually costs associated with such high degrees of restrictiveness. In practice, safety criteria are set on a progressive scale with the greatest restrictions established in locations with the greatest potential for aircraft accidents.

Airspace Protection

Relatively few aircraft accidents are caused by land use conditions which are hazards to flight. The potential exists, however, and protecting against it is essential to airport land use safety compatibility.

- **Compatibility Objective**—Because airspace protection is in effect a safety factor, its objective can likewise be thought of in terms of risk. Specifically, the objective is to avoid development of land use conditions which, by posing hazards to flight, can increase the risk of an accident occurring. The particular hazards of concern are:
  - Airspace obstructions;
  - Wildlife hazards, particularly bird strikes; and
  - Land use characteristics which pose other potential hazards to flight by creating visual or electronic interference with air navigation.
- **Measurement**—The measurement of requirements for airspace protection around an airport is a function of several variables including: the dimensions and layout of the runway system; the type of operating procedures established for the airport; and, indirectly, the performance capabilities of aircraft operated at the airport.
  - *Airspace Obstructions:* Whether a particular object constitutes an airspace obstruction depends upon the height of the object relative to the runway elevation and its proximity to the airport. The acceptable height of objects near an airport is most commonly determined by application of standards set forth in Part 77 of the Federal Aviation Regulations. These regulations establish a three-dimensional space in the air above an airport. Any object which penetrates this volume of airspace is considered to be an obstruction and may affect the aeronautical use of the airspace.
  - *Wildlife and Other Hazards to Flight:* The significance of other potential hazards to flight is principally measured in terms of the hazards' specific characteristics and their distance from the airport and/or its normal traffic patterns.
- **Compatibility Strategies** — Compatibility strategies for the protection of airport airspace are relatively simple and are directly associated with the individual types of hazards:
  - *Airspace Obstructions:* Buildings, antennas, other types of structures, and trees should be limited in height so as not to pose a potential hazard to flight.
  - *Wildlife and Other Hazards to Flight*: Land uses which may create other types of hazards to flight near an airport should be avoided or modified so as not to include the offending characteristic.

- **Basis for Setting Criteria** — The criteria for determining airspace obstructions and other hazards to flight have been long-established in FAR Part 77 and other Federal Aviation Administration regulations and guidelines. Also, state of California regulation of obstructions under the State Aeronautics Act (Public Utilities Code, Section 21659) is based on FAR Part 77 criteria.

Agency Responsibilities

Ensuring the maximum level of compatibility between the South County Airport and adjacent uses is the responsibility of five agencies: Santa Clara County, Santa Clara County Airport Land Use Commission, City of San Jose, California Division of Aeronautics, and the Federal Aviation Administration. Each agencies role is discussed below.

Santa Clara County

Santa Clara County has two roles related to land use compatibility. As owner and operator of the South County Airport, the county has a central role in ensuring the safety of aircraft operations and minimizing off-airport impacts. Although federal preemptions limit the County's authority, it remains responsible for implementation of modifications to the airfield to maximize safety and minimize off-airport effects.

Santa Clara County also has jurisdiction over land uses in the vicinity of the airport. This is an important role because land uses in the area are largely compatible with airport operations. When the Santa Clara County Airport Land Use Commission updates its compatibility plan for this airport (see below), Santa Clara County will be the implementing agency.

Santa Clara County Airport Land Use Commission

Requirements for creation of airport land use commissions (ALUCs) were first established under the California State Aeronautics Act (Public Utility Code Sections 21670 et seq.) in 1967. Although the law has been amended numerous times since then, the fundamental purpose of ALUCs to promote land use compatibility around airports has remained unchanged. As expressed in the present statutes, this purpose is:

"...to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses."

The statutes give ALUCs two principal powers by which to accomplish this objective. First, ALUCs must prepare and adopt an airport land use compatibility plan. Secondly, they must review the plans, regulations, and other actions of local agencies and airport operators for consistency with that plan.

The basic function of airport land use compatibility plans is to promote compatibility between airports and the land uses that surround them. Compatibility plans serve as a tool for use by airport land use commissions in fulfilling their duty to review proposed development plans for airports and surrounding land uses. Additionally, compatibility plans set compatibility criteria applicable to local agencies in their preparation or amendment of land use plans and ordinances and to landowners (including special district and other local government entities as well as private parties) in their design of new development.

The most recent version of the Santa Clara County Airport Land Use Commission's compatibility plan was adopted in September 1992. This document is entitled *Land Use Plan for Areas Surrounding Santa Clara County Airports*. As this is a key document, it is described in a separate section below.

Limitations

This fundamental objective notwithstanding, airport land use commissions are limited in their powers to achieve it. Two limitations are explicitly written into the law: ALUCs have no authority over either existing land uses (Section 21674(a)) or the operation of airports (Section 21674(e)). Neither of these terms is defined within the statutes, but the interpretation of their meaning is fairly standard throughout the state.

Existing Land Uses — The precise wording of the Aeronautics Act is that the authority of ALUCs extends only to land in the vicinity of airports that is "not already devoted to incompatible uses." The working interpretation of this language is that ALUCs have no state-empowered authority over existing land uses.

Operation of Airports — Any actions pertaining to how and where aircraft operate on the ground or in the air around an airport are clearly not within the jurisdiction of ALUCs to regulate. ALUC involvement with aircraft operations is limited to taking the operational characteristics into account in the development of land use compatibility plans. This limitation on the jurisdiction of ALUCs cannot, however, be taken to mean that they have no authority with respect to new development on airport property. For example, the law specifically requires ALUCs to review proposed airport master plans for consistency with the commission's plans. ALUCs also have authority to review proposals for nonaviation development on airport property.

A third, less absolute, limitation concerns the types of land use actions that are subject to ALUC review. The law emphasizes local general plans as the primary mechanism for implementing the compatibility policies set forth in an ALUC's plan. Thus, Santa Clara County and each city affected by an airport land use compatibility plan is required to make its general plan consistent with the ALUC plan (or to overrule the commission). Once a local agency has taken this action to the satisfaction of the Airport Land Use Commission, the ALUC's authority to review projects within that jurisdiction is narrowly limited. The only actions for which review remains mandatory are proposed adoption or amendment of general plans, specific plans, zoning ordinances, and building regulations affecting land within an airport influence area. For an ALUC to review individual projects, the local agency must agree to submit them.

One final limitation worth noting is that ALUCs have no jurisdiction over federal lands such as lands controlled by the U.S. Forest Service, Bureau of Land Management, or Indian tribes. ALUCs can merely inform these agencies about the ALUC policies and seek their cooperation..

California Division of Aeronautics

The Division of Aeronautics has multiple roles that directly or indirectly affect compatibility. Annual airfield inspections supplement the ongoing inspections by airport staff. It provides an independent review of airfield conditions and potential obstructions in the approaches to the runways. Agency staff also monitors noise reduction strategies at airports designated as having noise problems as defined in California's Airport Noise Regulations. The grant program administered by this agency is a potential source for land use compatibility planning and implementation of airfield safety improvements.

Federal Aviation Administration

The many divisions within the Federal Aviation Administration (FAA) play a variety of roles that affect compatibility around South County Airport. A few of those that have the most significant affect are mentioned in the text that follows. The staff of the FAA 's Nor Cal Approach has as their primary responsibility ensuring the separation of aircraft arriving and departing the South County Airport while on instrument flight plans. On a voluntary basis, Nor Cal Approach will also assist in ensuring separation of aircraft on visual flights. The airport may ultimately qualify for an air traffic control tower depending upon the actual activity level. In a less direct manner, the FAA also contributes to safety through the promulgation of regulations relating to flight and designation of various classes of airspace. As a grant funding agency the FAA supports measures to reduce noise impacts and improve airfield safety. For example, acquisition of properties that might be exposed to unacceptable levels of noise is expected to be funded by the FAA.

Airport Land Use Compatibility Plan

The airport land use compatibility plan for an airport is the key document providing guidance on compatible land uses. As part of this master plan, the current plan has been evaluated.

The *Land Use Plan for Areas Surrounding Santa Clara Airports* is a comprehensive document. It begins with an introduction that describes the state-mandated purposes of airport land use commissions. The relationship to local planning agencies and airport owners is documented. The introduction is followed by a description of the public airports in Santa Clara County covered by the plan. South County Airport is one of these airports. Next there is an extensive discussion of the characteristics of aviation noise and its measurement. Safety issues are covered in the subsequent chapter. Recommended safety zones are also presented in this chapter. The next two sections contain implementation procedures and the ALUC's policies. The balance of the document contains a glossary and various appendices.

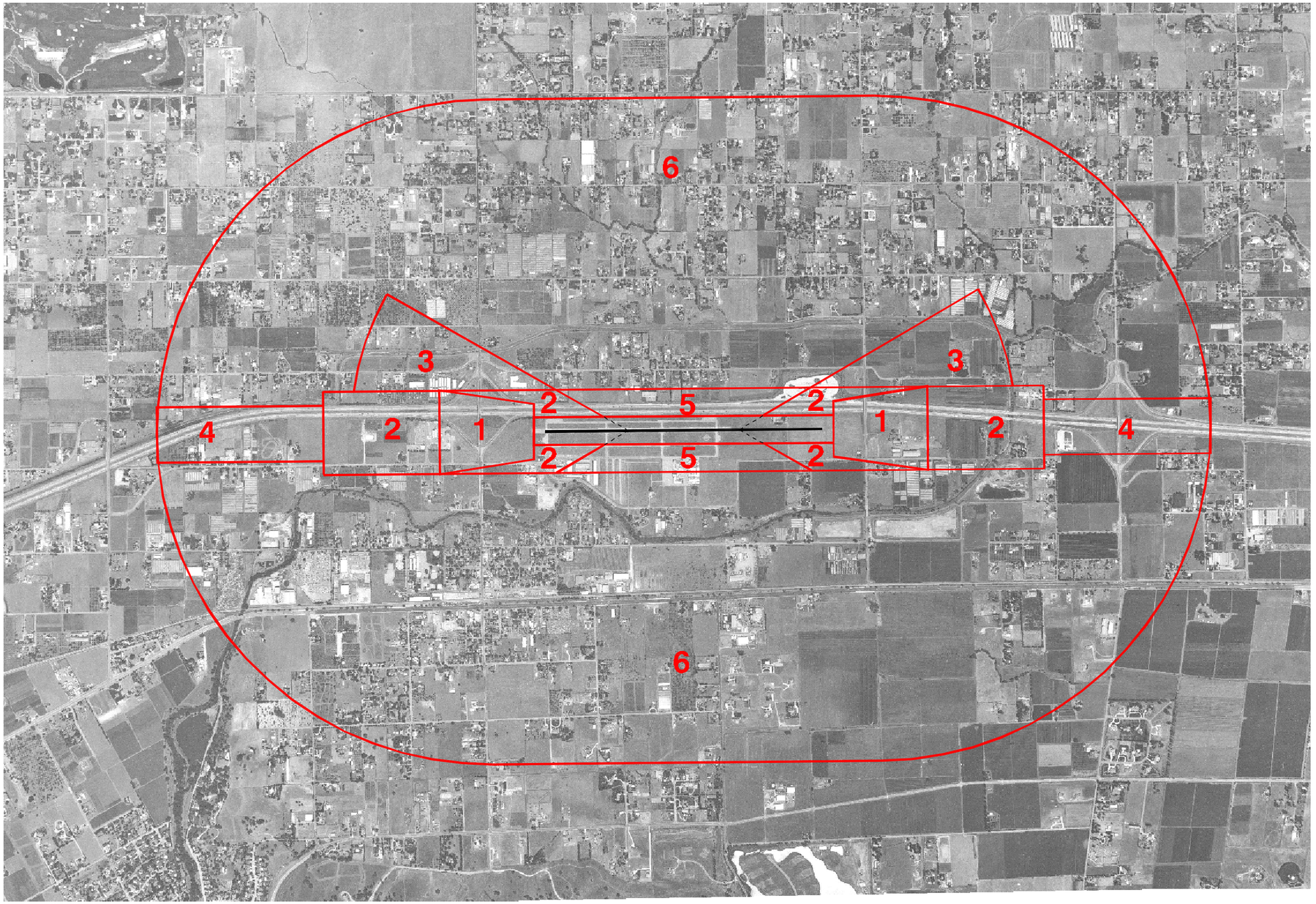
In the most general sense, both the adopted compatibility plan contains policies that are judged to be technically supportable and appropriate for an airport with the characteristics of South County. This airport master plan contains some changes that should be incorporated into the compatibility plan:

- Airfield: The compatibility plan assumes that two parallel runways will be constructed at South County Airport. The master plan anticipates that one, longer runway will be constructed.
- Airspace plan: has been modified to reflect the extension of the runway

- Noise contours: the new, larger noise contours should be used
- The safety zone boundaries should be modified to account for the change in runway length. Figure C-1 presents the proposed configuration for the safety zones.

In addition to those mechanical changes, it is also recommended that other changes be considered:

- Reformat the plan so that policies are clearly differentiated from supporting text. Specifically, it is suggested that all text, tables, and figures associated with policies be placed in one section. Numbered headings should be reserved for policies.
- The infill policies should be clarified. Given the large average parcel size in the area, careful consideration should be given to this policy.
- Policies controlling the creation of wildlife attractants should be added to the plan. The rural character of much of the area around the South County Airport leaves the potential for a variety of wildlife attractants to be proposed.
- Evaluate the existing plan concepts in light of the data and methodologies contained in the 2002 *California Airport Land Use Handbook*. The value of consolidating noise, safety and overflight policies into one set of compatibility zones should also be considered. This could simplify implementation of the policies.



Legend

1. Runway Protection Zone
2. Inner Approach/Departure Zone
3. Inner Turning Zone
4. Outer Approach/Departure Zone
5. Sideline Zone
6. Traffic Pattern Zone

Figure C-1

Safety Zone Overlay

South County Airport

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Appendix **B**

Glossary of Terms Used in Airport Master Planning

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PREFACE

Many technical terms and expressions are used in airport master planning and noise management programs. This glossary has been prepared for the County of Santa Clara and interested members of the public. The definitions in this glossary were compiled from various sources including government publications such as Federal Aviation Administration (FAA) Advisory Circulars, FAA Orders, the Federal Aviation Regulations (FARs) and professional literature.

GLOSSARY OF TERMS

AAAE (Triple-A E) - American Association of Airport Executives.

A-WEIGHTED SOUND LEVEL (dBA) - The human ear does not respond equally to all sound frequencies. It is less efficient at low and high frequencies than it is at medium or speech-range frequencies. Thus, to obtain a single number representing the sound level of a noise having a wide range of frequencies in a manner representative of the ear's response, it is necessary to reduce the effects of the low and high frequencies with respect to the medium frequencies. The resultant sound level is said to be A-weighted, and the units are decibels (dB); hence, the abbreviation is dBA. The A-weighted sound level is also called the noise level. Sound level meters have an A-weighting network for measuring A-weighted sound level.

ABOVE GROUND LEVEL (AGL) - An elevation datum given in feet above ground level.

ABSORPTION - Absorption is a property of materials that reduces the amount of sound energy reflected. Thus, the introduction of an "absorbent" into the surfaces of a room will reduce the sound pressure level in that room because sound energy striking the room surfaces will not be totally reflected. The process of absorption is entirely different from that of transmission loss through a material, which determines how much sound enters a room via the walls, ceiling, and floor. The effect of absorption merely reduces the resultant sound level in the room produced by energy that has already entered the room.

AC - See **ADVISORY CIRCULAR**

ACOUSTICS - (1) The science of sound, including the generation, transmission, and effects of sound waves both audible and inaudible; (2) The physical qualities of a room or other enclosure (such as size, shape, amount of noise) that determine the audibility and perception of speech and music.

ADT - See **AVERAGE DAILY TRAFFIC**

ADVISORY CIRCULAR (AC) - A series of external FAA publications consisting of all non-regulatory material of a policy, guidance, and informational nature.

AERONAUTICAL CHART - A representation of a portion of the earth, its culture and relief, specifically designated to meet the requirements of air navigation.

AFFECTED LOCAL GOVERNMENT AGENCIES - The local government agencies that have the authority to control land uses in areas that are adversely affected by aviation activities.

AGL - See **ABOVE GROUND LEVEL**

AIM – See **AIRMAN'S INFORMATION MANUAL**

AIP PROGRAM - See **AIRPORT IMPROVEMENT PROGRAM**

AIR CARRIER - A legal entity who undertakes directly by lease or other arrangements, to engage in air transportation.

AIR CARRIER, CERTIFICATED ROUTE - An air carrier holding a Certificate of Public Convenience and Necessity, issued by the U.S. Department of Transportation under Part 121 of the Federal Aviation Regulations (FAR), to conduct scheduled services over specified routes and a limited amount of nonscheduled operations.

AIR CARRIER, COMMUTER - An air taxi operator who, under FAR Part 135, (1) performs at least five round trips per week between two or more points and publishes flight schedules which specify the times, days of the week, and places between which such flights are performed; or (2) transports mail by air pursuant to a contract with the U.S. Postal Service.

AIRCRAFT ACCIDENT - An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, and in which any person suffers death or serious injury as a result of being in or upon the aircraft or by direct contact with the aircraft or anything attached thereto, or in which the aircraft receives substantial damage.

AIRCRAFT APPROACH CATEGORY - A grouping of aircraft based on a speed of 1.3 times the stall speed in the landing configuration at maximum gross landing weight. An aircraft shall fit in only one category. If it is necessary to maneuver at speeds in excess of the upper limit of a speed range for a category, the minimums for the next higher category should be used. For example, an aircraft which falls in Category A, but is circling to land at a speed in excess of 91 knots, should use the approach Category B minimums when circling to land. The categories are as follows:

1. Category A. Speed less than 91 knots.
2. Category B. Speed 91 knots or more but less than 121 knots.
3. Category C. Speed 121 knots or more but less than 141 knots.
4. Category D. Speed 141 knots or more but less than 166 knots.
5. Category E. Speed 166 knots or more.

AIRCRAFT CLASSES – For the purposes of Wake Turbulence Separation Minima, ATC classifies aircraft as Heavy, Large, and Small as follows:

1. Heavy. Aircraft capable of takeoff weights of 300,000 pounds or more whether or not they are operating at this weight during a particular phase of flight.
2. Large. Aircraft of more than 12,500 pounds, maximum certificated takeoff weight, up to 300,000 pounds.
3. Small. Aircraft of 12,500 pounds or less maximum certificated takeoff weight.

AIRCRAFT PARKING LINE LIMIT (APL) - A line established by the airport authorities beyond which no part of a parked aircraft should protrude.

AIRFIELD CAPACITY (HOURLY) - The maximum number of aircraft operations (landings or takeoffs) that can take place on an airfield in one hour under specific conditions.

AIRMAN'S INFORMATION MANUAL (AIM) - A primary FAA publication whose purpose is to instruct airmen about operating in the National Airspace System of the U.S. It provides basic flight information, ATC Procedures and general instructional information concerning health, medical facts, factors affecting flight safety, accident and hazard reporting, and types of aeronautical charts and their use.

AIRPORT - An area of land or water that is used or intended to be used for the landing and taking off of aircraft, and includes its buildings and facilities, if any.

AIRPORT ELEVATION - The highest point of an airport's usable runways, measured in feet above mean sea level.

AIRPORT ENVIRONS - The area surrounding an airport that is considered to be directly affected by the presence and operation of that airport.

AIRPORT HAZARD - Any structure or natural object located on or in the vicinity of a public airport, or any use of land near such airport, that obstructs the airspace required for the flight of aircraft landing, taking off, or taxiing at the airport.

AIRPORT IMPROVEMENT PROGRAM (AIP) - The AIP program is administered to provide financial grants-in-aid for airport development projects such as runways, taxiways, aircraft parking aprons, terminal buildings and land acquisition associated with airport development including runway protection zones and approach protection.

AIRPORT LAND USE COMMISSION (ALUC) - In California, a state-authorized body existing in each county having the responsibility to develop plans for achieving land use compatibility between airports and their environs.

AIRPORT LAND USE PLAN (ALUP) - In California, the formal plan, developed and adopted by an ALUC, setting forth criteria, policies and specifications for the preservation of long-term, land use compatibility between an airport and its environs.

AIRPORT LAYOUT PLAN - A plan (drawings) for an airport showing boundaries and proposed additions to all areas owned or controlled by the sponsor for airport purposes, the location and nature of existing and proposed airport facilities and structures, and the location on the airport of existing and proposed non-aviation areas and improvements thereon.

AIRPORT MASTER PLAN - An assembly of appropriate documents and drawings covering the development of a specific airport from a physical, economic, social, and political jurisdictional perspective. The Airport Layout Plan is a part of this plan.

AIRPORT NOISE COMPATIBILITY PLANNING STUDY - A study designed to increase the compatibility of land and facilities in the areas surrounding an airport that are most directly affected by the operation of the airport. The specific purpose is to reduce the adverse effects of noise as much as possible by implementing both on-airport noise control measures and off-airport land use control programs. The basic products of an Airport Noise Compatibility Planning Study typically include:

(1) workable on-airport noise abatement actions such as preferential runway use programs, new or preferential flight tracks, curfews, etc.;
(2) off-airport land use control programs and regulations such as land acquisition, soundproofing, or special actions and programs; and
(3) policies and procedures related to the implementation of on-airport and off-airport programs.

A community involvement program is usually carried on throughout all phases of the study. Conduct of such studies are eligible for federal funding participation. (Also see FAR Part 150.)

AIRPORT PROPRIETOR - Owner of an airport or other party having authority to control airport operations. In California, the holder of an airport permit issued by the Department of Transportation, Division of Aeronautics pursuant to Article 3, Chapter 4, Part 1, Division 9, Public Utilities Code.

AIRPORT RADAR SERVICE AREA (ARSA) - Regulatory airspace surrounding designated airports wherein FAA Air Traffic Control provides radar vectoring and sequencing on a full-time basis for all IFR and VFR aircraft. As of September 1993, the term ARSA has been replaced by the term Class C Airspace.

AIRPORT REFERENCE POINT - A point established on an airport, having an equal relationship to all existing and proposed landing and takeoff areas, and used to geographically locate the airport for other planning purposes.

AIRPORT SPONSOR - A public agency or tax-supported organization, such as an airport authority, that is authorized to own and operate an airport, to obtain property interests, to obtain funds, and to be legally, financially, and otherwise able to meet all applicable requirements of the current laws and regulations.

AIRPORT SURVEILLANCE RADAR (ASR) - Approach control radar used to detect and display an aircraft's position in the terminal area. ASR provides range and azimuth information but does not provide elevation data. Coverage of the ASR can extend up to 60 miles.

AIRPORT TRAFFIC AREA - Unless otherwise specifically designated in FAR Part 93, that airspace within a horizontal radius of 5 statute miles from the geographical center of any airport at which a control tower is operating, extending from the surface up to, but not including, an altitude of 3,000 feet above the elevation of an airport. Unless otherwise authorized by ATC, no person may operate an aircraft within an airport traffic area except for the purpose of landing at or taking off from an airport within that area. ATC authorizations may be given as individual approval of specific operations or may be contained in written agreements between airport users and the tower concerned.

AIRPORT TRAFFIC CONTROL TOWER (ATCT) - A terminal facility that uses air-to-ground communications, visual signaling, and other devices to provide ATC services to aircraft operating in the vicinity of an airport or on the movement area.

AIR ROUTE SURVEILLANCE RADAR (ARSR) - Air route traffic control center (ARTCC) radar used primarily to detect an aircraft's position which en route between terminal areas, enabling controllers to provide radar air traffic control service when aircraft are within the ARSR coverage.

AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC) - An FAA facility established to provide air traffic control service to aircraft operating on an instrument flight rule (IFR) flight plan within controlled airspace and principally during the en route phase of flight.

AIR TAXI - Operations performed by operators of aircraft holding an air taxi certificate under Part 135 of the Federal Aviation Regulations. This category includes commuter airline operations (excluding certificated commuter airlines), mail carriers under contract with the U.S. Postal Service, and operators of nonscheduled air taxi services. Typically, air taxis do not utilize aircraft with a payload capacity over 7,500 pounds or capable of carrying more than 30 passengers.

AIR TRAFFIC - Aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.

AIR TRAFFIC CLEARANCE/ATC CLEARANCE - An authorization by air traffic control, for the purpose of preventing collision between known aircraft, for an aircraft to proceed under specified traffic conditions within controlled airspace.

AIR TRAFFIC CONTROL (ATC) - A service operated by appropriate authority (the FAA) to promote the safe, orderly, and expeditious flow of air traffic.

AIRWAY/FEDERAL AIRWAY - A Class E airspace area established in the form of a corridor, the centerline of which is defined by radio navigational aids. (See also **CONTROLLED AIRSPACE**.)

ALERT AREA - A special use airspace which may contain a high volume of pilot training activities or an unusual type of aerial activity, neither or which is hazardous to aircraft.

ALPA - Airline Pilot's Association.

ALTITUDE - The height of a level, point, or object measured in feet Above Ground Level (AGL) or from Mean Sea Level (MSL).

ALUC - See **AIRPORT LAND USE COMMISSION**

ALUP - See **AIRPORT LAND USE PLAN**

AMBIENT NOISE - The total of all noise in a system or situation, independent of the presence of the specific sound to be measured. In acoustical measurements, strictly speaking, ambient noise means electrical noise in the measurement system. However, in popular usage ambient noise means is also used with the same meaning as "background noise" or "residual noise." (See also **AMBIENT NOISE LEVEL**.)

AMBIENT NOISE LEVEL – The composite of noise from all sources near and far. The ambient noise level constitutes the normal or existing level of environmental noise at a given location. (i.e., the background noise level.)

APPROACH CLEARANCE - Authorization by ATC for a pilot to conduct an instrument approach at an airport with appropriate facilities.

APPROACH LIGHT SYSTEM (ALS) - An airport lighting system which provides visual guidance enabling a pilot to align the aircraft with the extended runway centerline during final approach to landing.

APPROACH SPEED - The recommended speed contained in aircraft manuals used by pilots when making an approach to landing. This speed will vary for different segments of an approach as well as for aircraft weight and configuration.

APRON/RAMP - A defined area on an airport or heliport intended to accommodate aircraft for purposes of loading passengers or cargo, refueling, parking, or maintenance.

ARSR - See **AIR ROUTE SURVEILLANCE RADAR**

ARTCC - See **AIR ROUTE TRAFFIC CONTROL CENTER**

ASNA - See **AVIATION SAFETY AND NOISE ABATEMENT ACT OF 1979**

ASR - See **AIRPORT SURVEILLANCE RADAR**

ATA - Air Transport Association.

ATC - See **AIR TRAFFIC CONTROL**

ATIS - See **AUTOMATIC TERMINAL INFORMATION SERVICE**

AUTOMATED WEATHER OBSERVING SYSTEM (AWOS) - Airport electronic equipment which automatically measures meteorological parameters, reduces and analyzes the data via computer, and broadcasts weather information which can be received on aircraft radios.

AUTOMATIC TERMINAL INFORMATION SERVICE (ATIS) - The continuous broadcast of recorded non-control information in selected terminal areas (e.g. time, weather, ceiling, visibility, etc.).

AVERAGE DAILY TRAFFIC (ADT) - An expression of traffic volume, ADT means the average number of vehicles per day that pass over a given point.

AVIATION SAFETY AND NOISE ABATEMENT ACT OF 1979 (ASNA) - Public Law 96-193, enacted February 18, 1980. The purpose of the Act is to provide assistance to airports in preparing and carrying out noise compatibility programs and in assuring continued safety for aviation. The Act also contains provisions that extend, until January 1, 1988, the requirement for

certain types of aircraft to comply with Part 36 of the Federal Aviation Regulations (see also FAR Part 36 and FAR Part 150). Funding for the noise studies has been appropriated by the U.S. Congress and has commenced in 1983. Funding for program implementation, including acquisition and soundproofing of affected residences, has been approved by FAA and is being implemented at several U.S. airports.

AVIGATION EASEMENT - A type of acquisition of an interest in land or property which involves less-than-fee purchase (see also **LESS-THAN-FEE ACQUISITION**). One form of avigation easement grants an airport the right to perform aircraft operations over the designated property, including operations that might cause noise, vibration, and other effects. A stronger form of easement is a deed restriction that may include (1) the right to perform aircraft operations on the property, and (2) public acquisition of a landowner's rights restricting future development of the property for any use more intensive than that existing at the time of the transaction. This easement may also include specific prohibitions on the uses for which the property may be developed. Maximum heights of structures and other objects may also be specified.

AZIMUTH - Horizontal direction or bearing; usually measured from the reference point of 0 degrees clockwise through 360 degrees.

BACKCOURSE APPROACH - A non-precision instrument approach utilizing the rearward projection of the ILS localizer beam.

BACKGROUND NOISE - See **AMBIENT NOISE**.

BAFFLE - A baffle is a shielding structure or series of partitions used to increase the effective length of the external transmission path between two points in an acoustic system. For example, baffles may be used in sound traps (as in air conditioning ducts) or in automotive mufflers to decrease the sound transmitted while affording a path for airflow.

BASED AIRCRAFT - Aircraft stationed at an airport on a long-term or permanent basis, usually by some form of agreement between the aircraft owner and airport management.

BASE LEG - A flight path at right angles to the landing runway off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline. (See also **TRAFFIC PATTERN**.)

BLAST PAD - A paved area, of runway width, extending beyond the runway takeoff threshold for a sufficient distance (typically 150 to 300 feet) to prevent soil erosion caused by jet engine backblast.

BUILDING CODE - A legal document that sets forth requirements to protect the public health, safety and general welfare as they relate to the construction and occupancy of buildings and structures. The code establishes the minimum acceptable conditions for matters found to be in need of regulation. Topics generally covered are exits, fire protection, structural design, sanitary facilities, light, and ventilation. Sound insulation may also be included.

BUILDING RESTRICTION LINE (BRL) - A line established with respect to the runway centerline to assure that structures will not project above the imaginary surfaces required by Federal Aviation Regulations, Part 77, *"Obstruction Clearance Criteria,"* (FAR Part 77).

BUSINESS AVIATION - The sector of general aviation (as defined by ICAO) which concerns the operation of aircraft by companies for the carriage of passengers or goods as an aid to the conduct of their business, flown for purposes generally considered not for public hire, and piloted by individuals having at the minimum a valid commercial pilot license with an instrument rating.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) – An Act of the State of California designed to:

(1) Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
(2) Identify the ways that environmental damage can be avoided or significantly reduced.
(3) Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
(4) Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved. (CEQA Guidelines, Sec. 15002[a]).

CATEGORICAL EXEMPTION - An exemption from CEQA for classes of projects based on findings by the secretary of the resources agency that the listed classes of projects do not have a significant effect on the environment.

CBD - Central Business District

CEILING - Height above the earth's surface to the lowest layer of clouds or obscuring phenomena that is reported as "broken," "overcast," or "obscuration" and not classified as "thin" or "partial."

CEQ - See **COUNCIL ON ENVIRONMENTAL QUALITY**

CEQ 1500 - Regulations of the Federal Council on Environmental Quality (CEQ) for implementing the procedural provisions of the National Environmental Policy Act (NEPA).

CEQA - See **CALIFORNIA ENVIRONMENTAL QUALITY ACT**

CERTIFICATED ROUTE AIR CARRIER - See **AIR CARRIER, CERTIFICATED ROUTE**

CIRCLING APPROACH/CIRCLE-TO-LAND MANEUVER - A maneuver initiated by the pilot to align the aircraft with a runway for landing when a straight-in landing from an instrument approach is not possible or not desirable.

CLEAR ZONE - See **RUNWAY PROTECTION ZONE**

CLEARWAY - For turbine engine powered airplanes certificated after August 29, 1959, an area beyond the runway, not less than 500 feet wide, centrally located about the extended centerline of the runway, and under the control of the airport authorities. The clearway is expressed in terms of clearway plane, extending from the end of the runway with an upward slope not exceeding 1.25 percent, above which no object nor any terrain protrudes. However, threshold lights may protrude above the plane if their height above the end of the runway is 26 inches or less and if they are located to each side of the runway.

CNEL - See **COMMUNITY NOISE EQUIVALENT LEVEL**.

COMMON TRAFFIC ADVISORY FREQUENCY (CTAF) - A frequency designed for the purpose of carrying out airport advisory practices while operating to or from an uncontrolled airport. The CTAF may be a UNICOM, Multicom, FSDS, or tower frequency and is identified in appropriate aeronautical publications.

COMPASS LOCATOR - A low power, low or medium frequency radio beacon installed at the site of the outer or middle marker of an instrument landing system (ILS).

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL) - A method of predicting, by a single number rating, cumulative aircraft noise that affects communities in airport environs. As defined in the California Airport Noise Standards, CNEL represents the average daytime noise level during a 24-hour day, adjusted to an equivalent level to account for the lower tolerance of people to noise during evening and nighttime periods relative to the daytime period. Weighting factors equivalent to penalties of about five decibels and ten decibels are applied to operations conducted from 7:00 PM to 10:00 PM and from 10:00 PM to 7:00 AM, respectively, to account for increased sensitivity during those periods.

COMMUTER AIR CARRIER - See **AIR CARRIER, COMMUTER**

COMPREHENSIVE LAND USE PLAN (CLUP) - See **ALUP**.

COMPUTER MODELING - An analytical process which employs an electronic digital computer to perform difficult, laborious calculations involving mathematical functions or formulas. Computation of cumulative noise exposure (Ldn or CNEL) contours requires the use of computer modeling in order to process enormous quantities of data concerning aircraft traffic, performance and operating procedures.

CONTROLLED AIRSPACE - Any of several types of airspace within which some or all aircraft may be subject to air traffic control. An airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification. Controlled airspace is a generic term that covers Classes A-E airspace. Controlled airspace is also that airspace within which all aircraft operators are subject to certain pilot qualifications, operating rules, and equipment requirements in Part 91 (for specific operating requirements, please refer to Part 91). For IFR operations in any class of controlled airspace, a pilot must file an IFR flight plan and receive an appropriate ATC clearance. Each Class B, Class C, and Class D airspace area designated for an airport contains at lest one primary airport around which the

airspace is designated (for specific designations and descriptions of the airspace classes, refer to FAR Part 71).

COUNCIL ON ENVIRONMENTAL QUALITY (CEQ) - Established by the National Environmental Policy Act (NEPA) of 1969, the Council is composed of three members appointed by the President. A major purpose of the Council is to formulate and recommend national policies to promote the improvement of environmental quality.

CTAF - See **COMMON TRAFFIC ADVISORY FREQUENCY**.

DATABASE - A computer file (or set of files) containing a field of related numerical information (data) for use in automated analysis or processing. A computerized "land use database" is a computer file containing the coordinates, dimensions and areas of all individual land use polygons which comprise the pattern of land use within a specific geographic area.

DAY-NIGHT AVERAGE SOUND LEVEL (DNL or Ldn) - A method for predicting, by a single number rating, cumulative aircraft noise that affects communities in airport environs. The Ldn value represents decibels of noise as measured by an A-weighted sound-level meter (see also). In the Ldn procedure, the noise exposure from each aircraft takeoff or landing at ground level around an airport is calculated, and these noise exposures are accumulated for a typical 24-hour period. (The 24-hour period often used is the average day of the year being analyzed.) Daytime and nighttime noise exposures are considered separately. A weighting factor equivalent to a penalty of 10 decibels is applied to operations between 10:00 p.m. and 7:00 am to account for the increased sensitivity of people to nighttime noise. The Ldn values can be expressed graphically on maps using contours of equal noise exposure. Ldn may also be used for measuring other noise sources, such as automobile traffic, to determine combined noise effects.

dB - See **DECIBEL, dB**

DECIBEL, dB - A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of he sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).

DEREGULATION ACT - Airline regulatory reform act of 1978. Designed, among other things, to encourage competition among domestic air carriers, the Act allows an air carrier greater freedom to enter and leave any given market.

DEVELOPMENT RIGHTS - Rights of landowners to develop a parcel of land according to the zoning of that parcel. Land is often assessed on a combination of its "resource" value and its "commodity" value. The resource value is the value of the property in its natural state; the commodity value is an artificial value placed on it by the marketplace - that is, its value for development purposes. In less-than-fee acquisition (see also), the airport sponsor purchases only the development rights; the ownership of the land remains unchanged.

DIGITIZE - A mechanical-electronic process whereby the locations, sizes and identities of individual polygons, noise contours or other physical features are translated into a set of numerical

data within a computer data file or database for subsequent automated analysis, sorting or manipulation.

DISPLACED THRESHOLD - A runway landing threshold that is located at a point other than the designated beginning of the runway (where departures would begin).

DISTANCE MEASURING EQUIPMENT (DME) - Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.

DME - See **DISTANCE MEASURING EQUIPMENT**

DNL - See **DAY-NIGHT AVERAGE SOUND LEVEL**

DOWNWIND LEG - A flight path parallel to the landing runway in the direction opposite the landing direction.

DURATION - Length of time, in seconds, a noise event such as an aircraft flyover is experienced. (May refer to the length of time a noise event exceeds a specified threshold level.)

EA - See **ENVIRONMENTAL ASSESSMENT**

EFFECTS - See **IMPACT**

EIR - See **ENVIRONMENTAL IMPACT REPORT**

EIS - See **ENVIRONMENTAL IMPACT STATEMENT**

ENGINE RUN-UP AREA - An area on an airport where aircraft engines are serviced or tested. The noise from such servicing or testing can affect neighborhoods adjacent to the airport.

ENVIRONMENTAL ASSESSMENT (EA) - An assessment of the environmental effects of a proposed action for which federal financial assistance is being requested or for which federal authorization is required. The EA serves as the basis for the FAA's Environmental Impact Statement (EIS) or Finding of No Significant Impact (FONSI), as specified in FAA Orders 1050.1D and 5050.4.

ENVIRONMENTAL IMPACT REPORT (EIR) – An EIR is a detailed statement prepared in accordance with CEQA describing a proposed project, analyzing significant environmental effects of the proposed project, identifying a reasonable range of alternatives, and discussing possible ways to mitigate or avoid the significant environmental effects.

ENVIRONMENTAL IMPACT STATEMENT (EIS) - A document prepared under the requirements of the National Environmental Policy Act of 1969 (NEPA), Section 102(2)(c). The EIS represents a federal agency's evaluation of the effect of a proposed action on the environment. New regulations relating to the preparation of an EIS are published in FAA Orders 1050.1D and 5050.4.

ENPLANED/DEPLANED PASSENGERS - The volume of passengers outbound from an airport (enplaned) or inbound to an airport (deplaned). The annual passenger volume of an airport is the total of enplaned and deplaned passengers.

EQUIVALENT ENERGY LEVEL, Leq - The sound level corresponding to a steady state sound level containing the same total energy as a time varying signal over a given sample period. Leq is typically computed over 1, 8 and 24-hour sample periods.

EPA - The U.S. Environmental Protection Agency

FAA - See **FEDERAL AVIATION ADMINISTRATION**

FAA NOISE POLICY - The Aviation Noise Abatement Policy of the Department of Transportation, Federal Aviation Administration issued on November 18, 1976. The policy outlines the responsibilities and actions that may be taken to reduce adverse effects of aviation-related noise.

FAA ORDER - An internal FAA directive which sets standards, procedures and guidelines for FAA execution of its various regulatory and grant administration mandates.

FAA ORDER 1050.1D - An order published by the FAA, dated December 21, 1983, entitled *"Policies and Procedures for Considering Environmental Impacts."* This order was prepared in response to the CEQ 1500 Regulations.

FAA ORDER 5050.4A - This document, entitled *"Airport Environmental Handbook,"* was revised by the FAA on October 8, 1985. It contains all of the essential information an airport sponsor needs to meet both procedural and substantive environmental requirements, including relevant text from Order 1050.1D.

FAR – See **FEDERAL AVIATION REGULATIONS (FAR)**

FAR PART 36 - Federal Aviation Regulations, Part 36. Establishes noise standards for the civil aviation fleet. Some extensions for compliance are included in the Aviation Safety and Noise Abatement Act of 1979 (see also).

FAR PART 77 - Federal Aviation Regulations, Part 77. Establishes standards for identifying obstructions to aircraft in navigable airspace.

FAR PART 77 SURFACES - Imaginary surfaces established with relation to each runway of an airport. There are five types of surfaces: (1) primary, (2) approach, (3) transitional, (4) horizontal, and (5) conical.

FAR PART 91 – Establishes criteria for general operating and flight rules.

FAR PARTS 121 AND 135 - The parts of Federal Aviation Regulations that deal with certification and operational requirements for commercial operators of large aircraft and air taxis, respectively.

FAR PART 150 - Federal Aviation Regulations, Part 150. Effective February 28, 1982, FAR Part 150 is the regulation which implements the noise compatibility standards and provisions contained in the Aviation Safety and Noise Abatement Act of 1979 (ASNA). FAR Part 150 prescribes procedures for airport sponsors who wish to develop Noise Exposure Maps and Airport Noise Compatibility Plans to identify and mitigate airport - land use compatibility problems. FAR Part 150 was published in the Federal Register in amended form September 14, 1993.

FBO - See **FIXED BASE OPERATOR**.

FEDERAL AVIATION ADMINISTRATION - The FAA is the agency of the U.S. Department of Transportation that is charged with (1) regulating air commerce to promote its safety and development; (2) achieving the efficient use of navigable airspace of the United States; (3) promoting, encouraging, and developing civil aviation; (4) developing and operating a common system of air traffic control and air navigation for both civilian and military aircraft; and (5) promoting the development of a national system of airports.

FEDERAL AVIATION REGULATIONS (FAR) - Regulations establishes by the Federal Aviation Administration (FAA). These regulations are the rules which govern the operation of aircraft, airways, and airmen.

FEE-SIMPLE LAND ACQUISITION (PURCHASE) - The full purchase by the airport sponsor of land and improvements. The land is usually maintained for airport purposes or leased for uses that are compatible with airport operations. Alternatively, the airport sponsor can resell the land with an avigation easement (see also) and deed restrictions that specify the compatible land uses that are permitted. The resale option has the benefit that the land is returned to the tax rolls.

FERRY FLIGHT – A flight for the purpose of:

1. Returning an aircraft to base.
2. Delivering an aircraft from one location to another.
3. Moving an aircraft to and from a maintenance base.

FINDING OF NO SIGNIFICANT IMPACT (FONSI) - An administrative determination by the FAA that a proposed action by the airport sponsor will have no significant impact (on the environment). Specific guidelines for the preparation of a FONSI report (see EA) are included in FAA Orders 1050.1D and 5050.4A.

FIXED BASE OPERATOR (FBO) – (1) A business operating at an airport that provides aircraft services to the general pubic, including but not limited to sale of fuel and oil; aircraft sales, rental, maintenance and repair; parking and tie down or storage of aircraft; flight instruction; air taxi/charter operations; and specialty services, such as instrument and avionics maintenance, painting, overhaul, aerial application, aerial photography, aerial hoists or pipeline patrol. (2) The owner of such an operation.

FLIGHT PATH/TRACK - A line, course, or track along which an aircraft is flying or intended to be flown.

FLIGHT SERVICE STATION (FSS) - FAA facilities that provide pilot briefings on weather, airports, altitudes, routes, and other flight planning information. More specifically, these FSS facilities also provide en route communications and VFR search and rescue services, assist lost aircraft and aircraft in emergency situations, relay ATC clearances, originate Notices to Airmen, broadcast aviation weather and NAS information, receive and process IFR flight plans, and monitor NAVAID's. In addition, at selected locations, FSS's provide Enroute Flight Advisory Service (Flight Watch), take weather observations, issue airport advisories, and advise Customs and Immigration of transborder flights.

FLIGHT STANDARDS DISTRICT OFFICE (FSDO) - An FAA field office serving an assigned geographical area and staffed with Flight Standards personnel who serve the aviation industry and the general public on matters relating to the certification and operation of air carrier and general aviation aircraft. Activities include general surveillance of operational safety, certification of airmen and aircraft, accident prevention, investigation, enforcement, etc.

FLIGHT WATCH - A shortened term for use in air-ground contacts to identify the flight service station providing En Route Flight Advisory Service; e.g., "Oakland Flight Watch."

FLIGHT VISIBILITY - See **VISIBILITY**.

FLOW CONTROL - Measures designed to adjust the flow of traffic into a given airspace, along a given route, or bound for a given aerodrome (airport) so as to ensure the most effective utilization of the airspace.

FONSI - See **FINDING OF NO SIGNIFICANT IMPACT**

GENERAL AVIATION (GA) - All civil aviation except that classified as air carrier or air taxi. The types of aircraft typically used in general aviation activities vary from multi-engine jet aircraft to single-engine piston aircraft.

GENERAL AVIATION OPERATIONS - Operations performed by all civil aircraft not classified as air carrier or air taxi aircraft.

GLIDE SLOPE (GS) - An electronic signal radiated by a component of an ILS to provide descent path guidance to approaching aircraft.

GLOBAL POSITIONING SATELLITE SYSTEM (GPS) - A navigational system utilizing satellites to provide non-precision guidance in azimuth, elevation, and distance measurement.

GROUND VISIBILITY - See **VISIBILITY**.

HEAVY AIRCRAFT - Aircraft capable of takeoff weights of 300,000 pounds or more whether or not they are operating at this weight during a particular phase of flight.

HELICOPTER - Rotorcraft that, for its horizontal motion, depends principally on its engine-driven rotors.

HELIPAD - A small, designated area, usually with a prepared surface, on a heliport, airport, landing/takeoff area, apron/ramp, or movement area used for takeoff, landing, or parking of helicopters.

HELIPORT – An area of land, water, or structure used or intended to be used for the landing and takeoff of helicopters and includes its buildings and facilities if any.

HUD - The U.S. Department of Housing and Urban Development

ICAO – International Civil Aviation Organization.

IFR - See **INSTRUMENT FLIGHT RULES**

IFR CONDITIONS - Weather conditions that require aircraft to be operated in accordance with instrument flight rules.

IFR MINIMUMS AND DEPARTURE PROCEDURES (FAR PART 91) - Prescribed takeoff rules. For some airports, obstructions or other factors require the establishment of nonstandard takeoff minimums or departure procedures, or both. Both may be required to assist pilots in avoiding obstacles during climb to the minimum en-route altitude.

ILS - See **INSTRUMENT LANDING SYSTEM**.

ILS CATEGORIES –

1. ILS Category I – An ILS approach procedure which provides for approach to a height above touchdown of not less than 200 feet and with runway visual range of not less than 1,800 feet.
2. ILS Category II – An ILS approach procedure which provides for approach to a height above touchdown of not less than 100 feet and with runway visual range of not less than 1,200 feet.
3. ILS Category III.
    a. IIIA – An ILS approach procedure which provides for approach without a decision height minimum and with runway visual range of not less than 700 feet.
    b. IIIB – An ILS approach procedure which provides for approach without a decision height minimum and with runway visual range of not less than 150 feet.
    c. IIIC – An ILS approach procedure which provides for approach without a decision height minimum and without runway visual range minimum.

IMPACT - In environmental and noise control studies, the word "impact" is used to express the extent or severity of an environmental problem, e.g., the number of persons exposed to a given noise environment. As indicted in CEQ 1500 (Section 1508.8), impacts and effects are considered to be synonymous. Effects or impacts may be ecological, aesthetic, historic, cultural, economic, social, or health related, and they may be direct, indirect, or cumulative.

IMPACT INSULATION CLASS (IIC) - A single-figure rating that is intended to permit comparisons of the sound-insulating merits of floor-ceiling assemblies in terms of a reference contour.

INCOMPATIBLE LAND USE - Residential, public, recreational and certain other noise-sensitive land uses which are designated as unacceptable within specific ranges of cumulative (Ldn) noise exposure as set forth in Table 2 of Appendix A of FAR Part 150.

INSTRUMENT APPROACH PROCEDURE - A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority.

INSTRUMENT FLIGHT RULES (IFR) - Rules specified by the FAA for flight under weather conditions in which visual reference cannot be made to the ground and the pilot must rely on instruments to fly and navigate.

INSTRUMENT LANDING SYSTEM (ILS) - An electronic system which provides the aircraft with lateral, longitudinal and vertical guidance necessary for an instrument landing.

INSTRUMENT OPERATION - An aircraft operation in accordance with an IFR flight plan or an operation where IFR separation between aircraft is provided by a terminal traffic control facility.

INSTRUMENT RUNWAY - A runway equipped with electronic and visual navigation aids for which a precision or non-precision approach procedure having straight-in landing minima has been approved.

INVERSE SQUARE LAW - Describes the reduction in sound pressure where the mean square sound pressure changes in inverse proportion to the square of the distance from the source. Under this ideal condition, the sound pressure level decreases 6dB with each doubling of distance from the source.

ITINERANT OPERATION - An arrival or departure performed by an aircraft from or to a point beyond the local airport area. Also defined as all aircraft arrivals and departures other than local operations.

LAND USE COMPATIBILITY - The compatibility of land uses surrounding an airport with airport activities and particularly with the noise from aircraft operations.

LAND USE COMPATIBILITY ASSURANCE - Documentation provided by an airport sponsor to the FAA. The documentation is related to an application for an airport development grant. Its purpose is to assure that a reasonably appropriate action, including the adoption of zoning laws, has been taken or will be taken to restrict the use of land adjacent to the airport or in the immediate vicinity of the airport. Such uses are limited to activities and purposes compatible with normal airport operations, including the landing and takeoff of aircraft. This assurance is required of airport sponsors by Section 511 (a) (5) of the Airport and Airway Improvement Act of 1981. (Also see AIP Program.)

LAND USE CONTROLS - Controls established by local or state governments to carry out land use planning. The controls include zoning, subdivision regulations, land acquisition (in fee simple,

lease-back, or easements), building codes, building permits, and capital improvement programs (or provide sewer, water, utilities, or other service facilities).

LAND USE PLANNING - Comprehensive planning carried out by units of local government, for all areas under their jurisdiction, to identify the optimum uses of land and to serve as a basis for the adoption of zoning or other land use controls.

LARGE AIRCRAFT - An aircraft of more than 12,500 pounds maximum certificated takeoff weight, up to 300,000 pounds.

Ldn - See **DAY-NIGHT AVERAGE SOUND LEVEL**

Lmax - The maximum A-weighted noise level recorded during a noise event.

LEAD AGENCY - In California, the public agency that has the principal responsibility for carrying-out or approving a project. The Lead Agency will decide whether an EIR or Negative Declaration will be required for the project and will cause the document to be prepared. Criteria for determining which agency will be the Lead Agency for a project are contained in Section 15051 of the CEQA guidelines.

Leq - See **EQUIVALENT ENERGY LEVEL, Leq**

LESS-THAN-FEE ACQUISITION (PURCHASE) - The purchase of development rights (see also) from landowners by airport sponsors in areas that should remain at very low densities or in open space uses. The airport sponsor negotiates with the landowner to determine the fair market value of the unused development rights. Once sold, the land cannot be developed except in specified ways. (See also **FEE-SIMPLE m LAND ACQUISITION**.)

Lmax - See **MAXIMUM A-WEIGHTED NOISE LEVEL**

LOC - See **LOCALIZER**.

LOCAL AGENCY - In California, any public agency other than a state agency, board, or commission. "Local Agency" includes but is not limited to cities, counties, charter cities and counties, districts, school districts, special districts, redevelopment agencies, local agency formation commissions, and any board, commission, or organizational subdivision of a local agency when so designated by order or resolution of the governing legislative body of the local agency.

LOCAL OPERATION - An aircraft operation which remains no more than 25 nautical miles from the departure point, or which terminates at the point of departure, or which does not include a stop of a greater duration than 15 minutes. Touch-and-go operations are local operations.

LOCAL TRAFFIC - Aircraft operating in the traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport.

LOCALIZER (LOC) - The component of an ILS which provides horizontal course guidance to the runway.

LOCALIZER TYPE DIRECTIONAL AID (LDA) - A NAVAID used for non-precision instrument approaches with utility and accuracy comparable to a localizer, but which is not part of a complete ILS and is not aligned with the runway.

LOUDNESS - The judgment of the intensity of a sound by a person. Loudness depends primarily on the sound pressure of the stimulus. Over much of the loudness range it takes about a tenfold increase in sound pressure (approximately 10 decibels) to produce a doubling of loudness.

LOW APPROACH - An approach over an airport or runway following an instrument approach or a VFR approach including the go-around maneuver where the pilot intentionally does not make contact with the runway.

MAJOR AIRPORT DEVELOPMENT - Airport development of such a scale as to require shifts in patterns of population movement and growth, public service demands, and changes in business and economic activity.

MARKER BEACON - The component of an ILS which informs pilots that they are at a significant point on the approach course.

MASKING - The action of making one sound (audible when heard alone) inaudible or unintelligible by the introduction of another sound. The masking is most marked when the masked sound is of higher frequency than the masking sound.

MEAN SEA LEVEL (MSL) - An elevation datum given in feet above mean sea level.

MICROWAVE LANDING SYSTEM (MLS) - An advanced electronic system of ground-based devices and aircraft avionics which provides the aircraft with lateral, longitudinal and vertical guidance necessary for an instrument landing. In the U.S., MLS technology has been supplanted by GPS (which see).

MILITARY OPERATION - Operations performed by military groups, such as the Air National Guard, the U.S. Air Force, U.S. Army, U.S. Marine Corps, or the U.S. Navy.

MILITARY OPERATIONS AREA (MOA) - A type of special use airspace established to separate certain military activities from IFR traffic and to identify for VFR traffic where these activities are conducted.

MINIMUM DESCENT ALTITUDE (MDA) - The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuvering in execution of a standard instrument approach procedure where no electronic glide slope is provided.

MINIMUM SAFE ALTITUDE - The minimum altitude specified in Part 91 for various aircraft operations.

MINIMUMS - Weather condition requirements established for a particular operation or type of operation; e.g., IFR takeoff or landing, alternate airport for IFR flight plans, VFR flight, etc.

MISSED APPROACH –

1. A maneuver conducted by a pilot when an instrument approach cannot be completed to a landing. The route of flight and altitude are shown on instrument approach procedure charts. A pilot executing a missed approach prior to the Missed Approach Point (MAP) must continue along the final approach to he MAP. The pilot may climb immediately to the altitude specified in the missed approach procedure.
2. A term used by the pilot to inform ATC that he is executing the missed approach.
3. At locations where ATC radar service is provided, the pilot should confirm to radar vectors when provided by ATC in lieu of the published missed approach procedure.

MITIGATION MEASURE - An action that can be planned or taken to alleviate (mitigate) an adverse environmental impact. As set forth in CEQ 1500 (Section 1508.20), "mitigation" includes:

(a) Avoiding the impact altogether by not taking a certain action or parts of an action.
(b) Minimizing the impact by limiting the degree or magnitude of the action and its implementation.
(c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
(e) Compensating for the impact by replacing or providing substitute resources or environments.

A proposed airport development project, or alternatives to that project, may constitute a mitigation measure as defined by the CEQ. CEQA contains a similar definition of mitigation measure (Cal. Pub. Res. Code 21002, et seq.).

MLS - See **MICROWAVE LANDING SYSTEM**

MSL – See **MEAN SEA LEVEL**

NATIONAL AIRSPACE SYSTEM/NAS - The common network of U.S. airspace; air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; rules, regulations and procedures, technical information, and manpower and material. Included are system components shared jointly with the military.

NAVAID - See **NAVIGATIONAL AID**

NAVIGATIONAL AID (NAVAID) - Any visual or electronic device (airborne or on the ground) that provides point-to-point guidance information or position data to pilots of aircraft in flight.

NDB – See NONDIRECTIONAL RADIO BEACON (NDB)

NEPA - National Environmental Policy Act of 1969 (PL 91-190).

NOISE - Any sound or signal that is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying.

NOISE ABATEMENT PROCEDURES - Changes in operational procedures affecting runway use, in flight approach and departure routes and procedures, and in other air traffic procedures that are made to shift adverse aviation effects away from noise-sensitive areas (such as residential neighborhoods).

NOISE ATTENUATION OF BUILDINGS - The use of building materials to reduce noise through absorption, transmission loss, and reflection of sound energy.

NOISE COMPLAINT - A recorded complaint concerning aircraft noise made by an individual and kept on file at an airport.

NOISE CONTOURS - Lines drawn on a map that connect points of equal noise exposure (Ldn or CNEL) values. They are usually drawn in 5-dB intervals, such as Ldn 75 dB values, Ldn 70 dB values, Ldn 65 dB values, and so forth.

NOISE CONTROL PLANS - Documentation by the airport sponsor of actions to be taken by the sponsor to reduce the effect of aviation noise. These actions are to be taken by the sponsor either alone or in cooperation with the FAA, airport users, and affected units of local government, with appropriate comments from affected citizens. Alternative actions should be considered, particularly where proprietary use restrictions (see also) on aircraft operations are involved).

NOISE LEVEL REDUCTION (NLR) - The noise reduction between indoor and outdoor environments of two rooms is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of "noise level reduction" combines the effect of the transmission loss performance of the structure plus the effect of acoustic absorption present in the receiving room.

NOISE-SENSITIVE LAND USE - Land uses that can be adversely affected by high levels of aircraft noise. Residences, schools, hospitals, religious facilities, libraries, and other similar uses are often considered to be sensitive to noise.

NONCOMPATIBLE LAND USE - See **INCOMPATIBLE LAND USE**.

NONDIRECTIONAL RADIO BEACON (NDB) - A low or medium frequency radio beacon transmitting non-directional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his bearing to or from the radio beacon and "home" on or track to or from the station.

NONPRECISION APPROACH PROCEDURE - A standard instrument approach procedure in which no electronic glideslope is provided, such as VOR, GPS, or LOC (which "see").

NONPRECISION INSTRUMENT RUNWAY - A runway with an instrument approach procedure utilizing air navigation facilities, with only horizontal guidance, or area-type navigation equipment for which a straight-in non-precision instrument approach procedure has been approved or planned, and no precision approach facility or procedure is planned.

NOTAM – See **NOTICE TO AIRMEN**

NOTICE TO AIRMEN - A notice containing information (not known sufficiently in advance to publicize by other means) concerning the establishment, condition, or change in any component (facility, service, or procedure of, or hazard in the National Airspace System) the timely knowledge of which is essential to personnel concerned with flight operations.

OBSTACLE - An existing object, object of natural growth, or terrain, at a fixed geographical location, or which may be expected at a fixed location within a prescribed area, with reference to which vertical clearance is or must be provided during flight operation.

OBSTACLE FREE ZONE (OFZ) - A volume of space above and adjacent to a runway and its approach lighting system if one exists, free of all fixed objects except FAA-approved frangible aeronautical equipment and clear of vehicles and aircraft in the proximity of an airplane conducting an approach, missed approach, landing, takeoff, or departure.

OBSTRUCTION - An object that exceeds a limiting height or penetrates an imaginary surface described by current Federal Aviation Regulations (Part 77).

OPERATION - A take-off or a landing.

ORDER - See **FAA ORDER**.

OUTER MARKER - A marker beacon at or near the glide slope intercept position of an ILS approach.

PAPI - See **PRECISION APPROACH PATH INDICATOR**

PILOT IN COMMAND - The pilot responsible for the operation and safety of an aircraft during flight time.

POLYGON - An irregular geometric figure, encoded into a computer database, coincident with the physical conterminous boundaries of a single land use category. Individual polygons are encoded into a computer database using a process termed "digitizing."

PRECISION APPROACH PATH INDICATOR (PAPI) - An airport landing aid similar to a VASI, but which has light units installed in a single row rather than two rows.

PRECISION APPROACH PROCEDURE – A standard instrument approach procedure in which an electronic glideslope/glidepath is provided; e.g., ILS/MLS and PAR.

PRECISION INSTRUMENT PROCEDURE - A standard instrument procedure for an aircraft to approach an airport in which an electronic glide slope is provided, e.g., an instrument landing system (ILS) or military precision approach radar.

PRECISION INSTRUMENT RUNWAY - A runway with an instrument approach procedure utilizing an instrument landing system (ILS), microwave landing system (MLS), precision approach radar (PAR), or GPS.

PREFERENTIAL RUNWAY USE (PROGRAM) - A noise abatement action whereby the FAA Air Traffic Division, in conjunction with the FAA Airports Division, assists the airport sponsor in developing a program that gives preference to the use of a specific runway(s) to reduce overflight of noise-sensitive areas.

PROPRIETARY USE RESTRICTIONS - Restrictions by an airport sponsor on the number, type, class, manner, or time of aircraft operations at the airport The imposition of a curfew is an example of a proprietary use restriction.

PUBLIC AGENCY - In California, includes any state agency, board, or commission and any local or regional agency, as defined in the CEQA guidelines. It does not include the courts of the state. The term does not include agencies of the federal government.

RADAR APPROACH CONTROL FACILITY - A terminal ATC facility that uses radar and non-radar capabilities to provide approach control services to aircraft arriving, departing, or transiting airspace controlled by the facility. Provides radar ATC services to aircraft operating in the vicinity of one or more civil and/or military airports in a terminal area. Specific facility nomenclatures are used for administrative purposes only and are related to the physical location of the facility and the operating service generally as follows:

- Army Radar Approach Control/ARAC (Army),
- Radar Air Traffic Control Facility/RATCF (Navy/FAA),
- Radar Approach Control/RAPCON (Air Force/FAA),
- Terminal Radar Approach Control/TRACON (FAA),
- Tower/Airport Traffic Control Tower/ATCT (FAA) [only those towers delegated approach control authority].

REIL - See **RUNWAY END IDENTIFIER LIGHTS**

RELIEVER AIRPORT - An airport serving general aviation aircraft that might otherwise use a congested air carrier airport.

RESPONSIBLE AGENCY - In California, a public agency which proposes to carry out or approve a project, for which a Lead Agency is preparing or has prepared an EIR or Negative Declaration. For purposes of CEQA, the term "Responsible Agency" includes all public agencies other than the Lead Agency which have discretionary approval power over the project.

RESTRICTED AREA - Designated airspace within which the flight of aircraft, while not wholly prohibited, is subject to restriction.

RETROFIT - The retroactive modification of existing jet aircraft engines for noise abatement purposes.

RUNWAY - A defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length. Runways are normally numbered in relation to their magnetic direction rounded off to the nearest 10 degrees; e.g., Runway 01, Runway 25.

RUNWAY EDGE LIGHTS - Lights used to define the lateral limits of a runway.

RUNWAY END IDENTIFIER LIGHTS (REILs) - Two synchronized flashing lights, one on each side of the runway threshold, which provide a pilot with a rapid and positive visual identification of the approach end of a particular runway.

RUNWAY HEADING - The magnetic direction indication by the runway number. When cleared to "fly/maintain runway heading," pilots are expected to comply with the ATC clearance by flying the heading indicated by the runway number without applying any drift correction; e.g., Runway 4, 040^{O} magnetic heading; Runway 20, 200^{O} magnetic heading.

RUNWAY PROTECTION ZONE - A trapezoidal area at ground level whose perimeter conforms to the projection on the ground of the innermost portion of the Approach Surface as defined in FAR Part 77. The runway protection zone is centered on the extended runway centerline and begins at the end of the FAR Part 77 Primary Surface, terminating below the line where the Approach Surface reaches a height of 50 feet above the elevation of the runway end. FAA regulations require that runway protection zones be kept free of obstructions and any uses that cause an assemblage of persons.

RUNWAY SAFETY AREA - A cleared, drained, graded, and preferably turfed area symmetrically located about the runway which, under normal conditions, is capable of supporting snow removal, fire fighting, and rescue equipment and of accommodating the occasional passage of aircraft without causing major damage to the aircraft.

RUNWAY THRESHOLD - The beginning of that portion of a runway usable for landing or takeoff. (See also **DISPLACED THRESHOLD**.)

RUNWAY USE PROGRAM - See **PREFERENTIAL RUNWAY USE PROGRAM**

SEL – See **SOUND EXPOSURE LEVEL (SEL)**

SEVERE NOISE EXPOSURE - Exposure to aircraft noise that is likely to interfere with human activity in noise-sensitive areas; repeated vigorous complaints can be expected and group action is probable. This exposure may be specified by a cumulative noise descriptor as a level of noise exposure, such as the Ldn (or CNEL) 75 dB level. (See also **SIGNIFICANT NOISE EXPOSURE**.)

SHIELDING - The attenuation of a sound by placing walls, buildings, plants, or other barriers between a sound source and the receiver.

SIGNIFICANT ENVIRONMENTAL EFFECT - A significant effect on the environment is a substantial or potentially substantial adverse change in the physical conditions of the area affected by a project.

SIGNIFICANT NOISE EXPOSURE - Exposure to aircraft noise that is likely to interfere with human activity in noise-sensitive areas; individual complaints may be expected and group action is possible. This exposure may be specified by a cumulative noise descriptor as a level of noise exposure, such as the Ldn (or CNEL) 65 dB level. (See also **SEVERE NOISE EXPOSURE**.)

SMALL AIRCRAFT - Aircraft of 12,500 pounds or less maximum certificated takeoff weight.

SOUND EXPOSURE LEVEL (SEL) – The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the level of time-integrated A-weighted squared sound pressure for a stated time interval or event, based on the reference pressure of 20 micronewtons per square meter and reference duration of one second.

SOUND INSULATION - (1) The use of structures and materials designed to reduce the transmission of sound from one room or area to another, or from the exterior to the interior of a building, (2) the degree of reduction in sound transmission by means of sound insulating structures and materials.

SOUND LEVEL (NOISE LEVEL) - The weighted sound pressure level obtained by the use of a sound level meter having a standard frequency filter for attenuating or accentuating part of the sound spectrum.

SOUND LEVEL METER - An instrument, comprising a microphone, an amplifier, an output meter, and frequency weighting networks, that is used to measure noise and sound levels in a specified manner.

SOUND TRANSMISSION CLASS (STC) - The preferred single figure rating system designed to give an estimate of the sound insulation properties of a partition or a rank ordering of a series of partitions. It is intended for use primarily when speech and office noise constitute the principal noise problem.

SOUND TRANSMISSION LOSS - A measure in decibels of sound insulation provided by a structural configuration.

SPECIAL USE AIRSPACE - Airspace of defined horizontal and vertical dimensions wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities.

SPECIAL VFR CONDITIONS - Meteorological conditions that are less than those required for basic VFR flight in Class B,C,D, or E surface areas and in which some aircraft are permitted flight under visual flight rules.

SPECIAL VFR OPERATIONS - Aircraft operating in accordance with clearances within Class B, C, D, and E surface areas in weather conditions less than the basic VFR weather minima. Such operations must be requested by the pilot and approved by ATC.

STANDARD - A specific statement by an authority of permitted environmental conditions.

STANDARD INSTRUMENT DEPARTURE (SID) - A pre-planned instrument flight rules (IFR) air traffic control departure procedure printed for pilot use in graphic and/or textual form. SIDs provide transition from the terminal to the appropriate en route structure.

STANDARD TERMINAL ARRIVAL ROUTE (STAR) - A pre-planned instrument flight rules (IFR) air traffic control arrival route published for pilot use in graphic and/or textual form. STARs provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area.

STOPWAY - An area beyond the takeoff runway, no less wide than the runway and centered upon the extended centerline of the runway, able to support the aircraft during an aborted takeoff, without causing structural damage to the aircraft, and designated by the airport authorities for use in decelerating the aircraft during an aborted takeoff.

STRAIGHT-IN INSTRUMENT APPROACH - An instrument approach wherein final approach is begun without first having executed a procedure turn; it is not necessarily completed with a straight-in landing or made to straight-in landing weather minima.

SUBDIVISION REGULATIONS (ORDINANCE) - Regulations promulgated by local governments to guide development in defined ways and by prescribed methods to control the use of private land in the public interest. Subdivision regulations were initially established to prevent (1) the uncontrolled subdivisions of land that often left communities without adequate streets, water mains, or sewers, and (2) disorderly, chaotic growth - urban sprawl.

SUBSTANTIAL EVIDENCE - Under CEQA, if there is substantial evidence that a project may have a significant environmental effect, an EIR must be prepared. Substantial evidence includes facts, reasonable assumptions based on facts, and expert opinions supported by facts. The following are *not* substantial evidence: argument, speculation, unsubstantiated opinion or narrative, clearly inaccurate or erroneous information, or evidence of social or economic impacts that do not contribute to, or are not caused by, physical impacts on the environment.

TAXI - The movement of an airplane under is own power on the surface of an airport. Also, it descries the surface movement of helicopters equipped with wheels.

TAXILANE - The portion of the aircraft parking area used for access between taxiways, aircraft parking positions, hangars, storage facilities, etc.

TAXIWAY - A defined path, from one part of an airport to another, selected or prepared for the taxiing of aircraft.

TERMINAL AIRSPACE - See **TERMINAL AREA**.

TERMINAL AREA - A general term used to describe airspace in which approach control service or airport traffic control service is provided.

TERMINAL INSTRUMENT PROCEDURES (TERPS) - Procedures for instrument approach and departure of aircraft to and from civil and military airports. There are four types of terminal instrument procedures: (1) precision approach, (2) non-precision approach, (3) circling, and (4) departure.

TERPS - Terminal Instrument Procedures.

THRESHOLD - The beginning of that portion of the runway usable for landing.

TOUCH-AND-GO OPERATION - A practice maneuver consisting of a landing and a takeoff performed in one continuous movement—the aircraft lands and begins takeoff roll without stopping. A touch-and-go is considered as two operations.

TOWER - See **AIRPORT TRAFFIC CONTROL TOWER (ATCT)**.

TRAFFIC PATTERN - The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach.

1. Upwind Leg – A flight path parallel to the landing runway in the direction of landing.
2. Crosswind Leg – A flight path at right angles to the landing runway off its upwind end.
3. Downwind Leg – A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg.
4. Base Leg – A flight path at right angles to the landing runway off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline.
5. Final Approach – A flight path in the direction of landing along the extended runway centerline. The final approach normally extends from the base leg to the runway. An aircraft making a straight-in approach VFR is also considered to be on final approach.

TRANSFER OF DEVELOPMENT RIGHTS (TDR) - TDR involves separate ownership and use of the various rights associated with a parcel of real estate. Under the TDR concept, some of the property's development rights (see also) are transferred to another location where they may be used to intensify allowable development. For example, lands within an area affected by aircraft noise could be kept in open space or agricultural uses, and development rights for residential or other uses could be transferred to locations outside the area. Landowners could be compensated for the transferred rights by their sale at the new locations, or the rights could be purchased by the airport. Depending on market conditions and legal requirements, the airport could either hold or resell the rights.

TRANSIENT AIRCRAFT - Aircraft not based at the airport.

TRANSITIONAL AIRSPACE - That portion of controlled airspace wherein aircraft change from one phase of flight or flight condition to another.

TRANSMISSOMETER - An apparatus used to measure runway visibility on an ILS runway.

TRANSPORT AIRPORT - An airport designed, constructed, and maintained to serve airplanes having approach speeds of 121 knots or more.

TURBOJET AIRCRAFT - An aircraft having a jet engine in which the energy of the jet operates a turbine which in turn operates the air compressor.

TURBOPROP AIRCRAFT - An aircraft having a jet engine in which the energy of the jet operates a turbine which drives the propeller.

UNICOM (Aeronautical Advisory Station) - A non-government air/ground radio communication facility which may provide airport information (winds, weather, etc.) at specific airports.

UTILITY AIRPORT - An airport designed, constructed, and maintained to serve airplanes having approach speeds less that 121 knots.

URBAN GROWTH MANAGEMENT (UGM) - The identification and management of the demands on municipal facilities, improvements or services created by any proposed residential, commercial, industrial, or other type of development. UGM is intended to (1) provide the means for satisfying such demands, 92) identify any harmful effects of development, and (3) protect the jurisdictions and their residents against such harmful effects by minimizing the costs of municipal facilities, improvements, and services. The intent of UGM is usually not to prevent development or growth, but rather to avoid free or disorganized development or growth in the UGM area, which is generally located in and around the fringe of an urban area. The UGM area usually is either relatively undeveloped or predominantly agricultural and lacks most, if not all, municipal facilities, improvements, or services.

ULTRALIGHT VEHICLE - An aeronautical vehicle operated for sport or recreational purposes which does not require FAA registration, an airworthiness certificate, nor pilot certification. They are primarily single-occupant vehicles, although some two-place vehicles are authorized for training purposes. Operation of an ultralight vehicle in certain airspace requires authorization from ATC.

VASI - See **VISUAL APPROACH SLOPE INDICATOR**

VECTOR - A heading issued to a pilot to provide navigational guidance by radar.

VERY HIGH FREQUENCY (VHF) OMNIDIRECTIONAL RANGE (VOR) - The standard navigational aid used throughout the airway system to provide bearing information to aircraft. When combined with Tactical Air Navigation (TACAN) the facility, called VORTAC, provides distance as well as bearing information.

VFR - See VISUAL FLIGHT RULES

VFR CONDITIONS - Weather conditions that permit aircraft to be operated in accordance with visual flight rules.

VICTOR AIRWAY - A control area or portion thereof established in the form of a corridor, the centerline of which is defined by VOR's.

VISIBILITY - The ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night. Visibility is reported as statute miles, hundreds of feet or meters.

1. *Flight Visibility*. The average forward horizontal distance, from the cockpit of an aircraft in flight, at which prominent unlighted objects may be seen and identified by day and prominent lighted objects may be seen and identified by night.
2. *Ground Visibility*. Prevailing horizontal visibility near the earth's surface as reported by the United States National Weather Service or an accredited observer.

VISUAL APPROACH - An approach to an airport wherein an aircraft on an IFR flight plan, operating in VFR conditions under the control of a radar facility and having an air traffic control authorization, may deviate from the prescribed instrument approach procedure and proceed to the airport of destination, served by an operational control tower, by visual reference to the surface.

VISUAL APPROACH SLOPE INDICATOR (VASI) - An airport landing aid which provides a pilot with visual descent (approach slope) guidance while on approach to landing. See also **PAPI**.

VISUAL FLIGHT RULES (VFR) - Rules that govern the procedures for conducting flight under visual conditions (Federal Aviation Regulations, Part 91).

VISUAL RUNWAY - A runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA-approved airport layout plan.

VOR - See **VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE**

WAKE TURBULENCE - Phenomena resulting from the passage of an aircraft through the atmosphere. The term includes vortices, thrust stream turbulence, jet blast, jet wash, propeller wash, and rotor wash both on the ground and in the air.

WARNING AREA – Airspace which may contain hazards to non-participating aircraft in international airspace.

WIND SHEAR - A change in wind speed and/or wind direction in a short distance resulting in a tearing or shearing effect. It can exist in a horizontal or vertical direction and occasionally in both.

ZONING AND ZONING ORDINANCES - Ordinances that divide a community into zones or districts according to the present and potential use of properties for the purpose of controlling and directing the use and development of those properties. Zoning is concerned primarily with the use of land and buildings, the height and bulk of buildings, the proportion of a lot which buildings may cover, and the density of population of a given area. As an instrument of plan implementation, zoning deals principally with the use and development of privately owned land and buildings. The objective of zoning legislation is to establish regulations that provide locations for all essential uses

of land and buildings and to ensure that each use is located in the most appropriate place. In FAR Part 150 planning, zoning can be used to achieve two major airs: (1) to reinforce existing compatible land uses and promote the location of future compatible uses in vacant or undeveloped land, and (2) to convert existing non-compatible uses to compatible uses over time.

Table 1

Existing (2002) Itinerant Operations (Arrivals and Departures are equal and half of listed number) and Local Operations (Two Operations per Local Pattern)

Aircraft (INM)	Operations						
	Type	Annual	%	Day	Evening	Night	Total
Single-Engine, Propeller, Fixed-Pitch (GASEPF)	Itinerant	19,196	34.28%	49.4362	2.6296	0.5260	**52.5918**
	Local	20,805	37.15%	57.0000	0.0000	0.0000	**57.0000**
Single-Engine, Propeller, Variable-Pitch (GASEPV)	Itinerant	5,254	9.38%	13.5308	0.7198	0.1440	**14.3946**
	Local	4,745	8.47%	13.0000	0.0000	0.0000	**13.0000**
Twin-Engine Propeller, Piston (BEC58P)	Itinerant	2,000	3.57%	5.1506	0.2740	0.0548	**5.4794**
Single-Engine, Turboprop (GASEPV)	Itinerant	1,000	1.79%	2.5754	0.1370	0.0274	**2.7398**
Business Turboprop (Twin) (CAN441)	Itinerant	2,000	3.57%	5.1506	0.2740	0.0548	**5.4794**
Small Fanjet (MU3001)	Itinerant	70	0.13%	0.1802	0.0096	0.0020	**0.1918**
Medium Fanjet (LEAR35)	Itinerant	0	0.00%	0.0000	0.0000	0.0000	**0.0000**
Helicopter (H500D)	Itinerant	930	1.66%	2.4206	0.1274	0.0000	**2.5480**
TOTAL		**56,000**	**100.00%**	**148.4444**	**4.1714**	**0.809**	**153.4248**

Table 2

Five-Year Forecast (2007) Itinerant Operations (Arrivals and Departures are equal and half of listed number) and Local Operations (Two Operations per Local Pattern)

Aircraft (INM)	Operations						
	Type	Annual	%	Day	Evening	Night	Total
Single-Engine, Propeller, Fixed-Pitch (GASEPF)	Itinerant	26,801	28.06%	69.0232	3.6714	0.7342	**73.4288**
	Local	29,200	30.58%	80.0000	0.0000	0.0000	**80.0000**
Single-Engine, Propeller, Variable-Pitch (GASEPV)	Itinerant	14,226	14.90%	36.6376	1.9488	0.3898	**38.9762**
	Local	12,775	13.38%	35.0000	0.0000	0.0000	**35.0000**
Twin-Engine Propeller, Piston (BEC58P)	Itinerant	6,000	6.28%	15.4536	0.8220	0.1644	**16.4400**
Single-Engine, Turboprop (GASEPV)	Itinerant	1,423	1.49%	3.6660	0.1950	0.0390	**3.9000**
Business Turboprop (Twin) (CAN441)	Itinerant	4,000	4.19%	10.3024	0.5480	0.1096	**10.9600**
Small Fanjet (MU3001)	Itinerant	77	0.08%	0.1974	0.0106	0.0022	**0.2102**
Medium Fanjet (LEAR35)	Itinerant	0	0.00%	0.0000	0.0000	0.0000	**0.0000**
Helicopter (H500D)	Itinerant	1,000	1.05%	2.6030	0.1370	0.0000	**2.7400**
TOTAL		**95,502**	**100.00%**	**252.8632**	**7.3328**	**1.4392**	**261.6552**

Table 3

Twenty-Year Forecast (2022) Itinerant Operations (Arrivals and Departures are equal and half of listed number) and Local Operations (Two Operations per Local Pattern)

Aircraft (INM)	Operations						
	Type	Annual	%	Day	Evening	Night	Total
Single-Engine, Propeller, Fixed-Pitch (GASEPF)	Itinerant	41,734	23.77%	93.7584	17.1510	3.4302	**114.3396**
	Local	45,266	25.78%	124.0168	0.0000	0.0000	**124.0168**
Single-Engine, Propeller, Variable-Pitch (GASEPV)	Itinerant	31,530	17.96%	70.8346	12.9576	2.5916	**86.3838**
	Local	28,470	16.22%	78.0000	0.0000	0.0000	**78.0000**
Twin-Engine Propeller, Piston (BEC58P)	Itinerant	12,000	6.84%	26.9588	4.9316	0.9864	**32.8768**
Single-Engine, Turboprop (GASEPV)	Itinerant	5,000	2.85%	11.2328	2.0548	0.4110	**13.6986**
Business Turboprop (Twin) (CAN441)	Itinerant	8,000	4.56%	17.5342	3.2876	1.0958	**21.9176**
Small Fanjet (MU3001)	Itinerant	1,500	0.85%	3.2876	0.6164	0.2054	**4.1094**
Medium Fanjet (LEAR35)	Itinerant	60	0.03%	0.1316	0.0246	0.0082	**0.1644**
Helicopter (H500D)	Itinerant	2,000	1.14%	5.3700	0.1096	0.0000	**5.4796**
TOTAL		**175,560**	**100.00%**	**431.1248**	**41.1332**	**8.7286**	**480.9866**

Table 4

Time of Day Distribution for Years 2002 and 2007

Aircraft Type		Percentage of Operations by Aircraft Type		
		Day 7:00 a.m. 7:00 p.m.	Evening 7:00 p.m. 10:00 p.m.	Night 10:00 p.m. 7:00 a.m.
Single-Engine, Propeller, All	Takeoff Landing	94.0% 94.0%	5.0% 5.0%	1.0% 1.0%
Twin-Engine, Propeller, Piston	Takeoff Landing	94.0% 94.0%	5.0% 5.0%	1.0% 1.0%
Single-Engine, Turboprop	Takeoff Landing	94.0% 94.0%	5.0% 5.0%	1.0% 1.0%
Business Turboprop (Twin)	Takeoff Landing	94.0% 94.0%	5.0% 5.0%	1.0% 1.0%
Jets, All	Takeoff Landing	94.0% 94.0%	5.0% 5.0%	1.0% 1.0%
Helicopter	Takeoff Landing	95.0% 95.0%	5.0% 5.0%	0.0% 0.0%

Table 5

Time of Day Distribution for Year 2022

Aircraft Type		Percentage of Operations by Aircraft Type		
		Day 7:00 a.m. 7:00 p.m.	Evening 7:00 p.m. 10:00 p.m.	Night 10:00 p.m. 7:00 a.m.
Single-Engine, Propeller, All	Takeoff Landing	82.0% 82.0%	15.0% 15.0%	3.0% 3.0%
Twin-Engine, Propeller, Piston	Takeoff Landing	82.0% 82.0%	15.0% 15.0%	3.0% 3.0%
Single-Engine, Turboprop	Takeoff Landing	82.0% 82.0%	15.0% 15.0%	3.0% 3.0%
Business Turboprop (Twin)	Takeoff Landing	80.0% 80.0%	15.0% 15.0%	5.0% 5.0%
Jets, All	Takeoff Landing	80.0% 80.0%	15.0% 15.0%	5.0% 5.0%
Helicopter	Takeoff Landing	98.0% 98.0%	2.0% 2.0%	0.0% 0.0%

RUNWAY UTILIZATION

Runway Utilization for all years and all fixed-wing aircraft types was 15% on Runway 14 and 85% on Runway 32. Helicopter or rotary-wing aircraft followed the same percentages for direction of arrival or departure.

Table 6

Flight Tracks – Takeoff, All Years

Aircraft Type	Percentage of Track Usage by Runway						
	Runway 14		Runway 32				Helipad
	Straight Out	Left Downwind	Left turn at 2 miles	Left turn at Runway End	Right Downwind	Straight Out	Straight Out
Single-Engine, Propeller, All	20.0	80.0	50.0	30.0	20.0	–	–
Twin-Engine, Propeller, Piston	20.0	80.0	50.0	30.0	20.0	–	–
Single-Engine Turboprop	20.0	80.0	50.0	30.0	20.0	–	–
Business Turboprop (Twin)	20.0	80.0	50.0	30.0	20.0	–	–
Jets, All	100.0	–	–	–	–	100.0	–
Helicopter	–	–	–	–	–	–	100.0

Table 7
Flight Tracks – Landing, All Years

Aircraft Type	Percentage of Track Usage by Runway				
	Runway 14		Runway 32		Helipad
	Straight In	From Left Downwind	Straight In	From Right Downwind	Straight In
Single-Engine, Propeller, All	20.0	80.0	20.0	80.0	–
Twin-Engine, Propeller, Piston	20.0	80.0	20.0	80.0	–
Single-Engine Turboprop	20.0	80.0	20.0	80.0	–
Business Turboprop (Twin)	20.0	80.0	20.0	80.0	–
Jets, All	100.0	–	100.0	–	–
Helicopter	–	–	–	–	100.0

Source: Data compiled by Mead & Hunt and HMMH (April 2005)

ENVIRONMENTAL CONSTRAINTS

Development projects for South County Airport will occur within the regulatory structure of the State of California (including its subunits) and the United States. Both levels of government have environmental regulations that must be considered. This section is intended to identify potential environmental concerns that should be assessed as part of the environmental review.

Biological

Potential biological issues were identified based upon information obtained from available data sources. Based upon these sources, the following have been identified as potential biological issues:

Wetlands — The project is not expected to have any negative effects on wetlands or riparian areas; none were observed in the vicinity of the proposed improvements.

Sensitive Species — There are no federal or state listings for endangered species on the airport site. However, there is an occurrence of Metcalf Canyon jewel-flower (*Streptanthus albidus ssp. albidus*), listed as a Federal Endangered Species, near the project area.

Metcalf Canyon jewel-flower

There are no known active raptor nests within the immediate vicinity of South County Airport; however, there is a remote possibility that nests could be established in the future. There are no native resident or migratory fish or wildlife species, or established native resident or migratory wildlife corridors, or native wildlife nursery sites known to exist on the project site.

Dense trees are located in Llagas Creek, west of the airport across Murphy Avenue. The trees are approximately 100 to 200 feet from any proposed improvements. There is also a small grove of oak trees approximately 1,200 feet south of the hanger location along Murphy Avenue; these existing oak trees would not be disturbed.

The Airport Master Plan does not expect conflict with any existing Habitat Conservation Plan, Natural Community Conservation Plan, or any other approved conservation plan, since none have been adopted for the project site or within the immediate vicinity around the airport.

As no project specific biological investigations have been performed, a biological reconnaissance should be conducted as a part of the environmental documentation process.

Geology and Soils

Geology — South County Airport is located in the San Andreas Fault Zone (SAFZ), with the San Andreas Fault located approximately 10 miles west of the airport, and the Calaveras Fault less then 5 miles to the east. The Working Group on California Earthquake Probabilities estimates that there is a 70 percent probability that one or more large earthquakes will occur within the San Francisco Bay Area during the 30 year period 2000 to 2030. Therefore, it is reasonable to expect that the airport would be subject to intense shaking during the life of the Airport Master Plan. Structures should be designed to address this issue.

Soils — The South County Airport is not located in a fault rupture hazard zone, compressible soil hazard zone, landslide hazard zone or dike failure hazard zone. However, the southwestern portion of the property is located within a liquefaction hazard zone. The airport has been mapped as having a range of liquefaction potential from "low" to "high". High liquefaction potentials would occur in the southwestern portion of the airport, while low liquefaction potentials would occur in the northwestern half of the airport.

The majority of soil types found at the airport are classified as loam to gravelly loam. A portion of the airport property is classified as Zamora clay loam. The airports Zamora clay content limits the airports ability to support a septic system.

Mineral Resources

There are no known mineral resources at or near the airport site. Therefore, mineral resources are not considered to be an environmental constraint at South County Airport.

Agricultural Resources

Farming has historically occurred on the airport site. Currently, there are no active farming operations on the airport property, but it is likely that land undeveloped within the airport boundaries, outside the airport non-moving zone, would likely be farmed in the future.

The majority of lands surrounding the airport are within a Rural Residential District. The district is intended to permit rural residential development, and to promote agricultural open space. There is one parcel of land southwest of the airport, on the west side of Murphy Avenue, which is under the Williamson Act. This parcel is within the 332 acres proposed to be acquired for future approach projection easements. While it is likely that this parcel will be able to remain in an agricultural use, the potential impacts should be evaluated.

Hazard and Hazardous Material

Uses and storage of hazardous materials would require the preparation of a Hazardous Materials Business Plan. However, no unusually hazardous materials are anticipated to be stored on the airport.

Aircraft accidents are statistically rare. The areas of greatest concern lie immediately beyond the runway ends. Federal Aviation Administration advisory circular on airport design (AC 150/5300-13) recommends airport acquisition of land beyond runway ends that lies with the Runway Protection Zones. This master plan anticipates acquisition of those portions of the future runway protection

zones that are not already under public ownership. Additionally, various forms of easements will be obtained in the balance of the airport's environs to prevent creation of new hazards.

Aesthetics

Because the proposed improvements for South County Airport will be on airport property, only minimal effects would be incurred on the existing views for the area. Due to existing lighting from U.S 101, new lighting for the airport would not add substantial amounts of light, as impacts from new lighting would only add incrementally to nighttime views of the area.

Mature oak trees located near the center of the airport will be retained as the airport is developed. New development will be sited to allow the trees to remain. There are no other significant scenic resources such as trees, rock outcroppings, or historical buildings that could be affected by the proposed Master Plan.

Cultural Resources

There are no known archeological or paleontological resources or unique geological features within or on the airport site.

Transportation and Traffic

The number of based aircraft for South County Airport is expected to increase from approximately 200 to 418 over the next 20 years. This increase in based aircraft is expected to increase vehicular traffic on the roads near the airport. Although currently the adjacent roads are well below capacity, the long-term affects should be studied.

Current airport vehicle counts were taken in June 2004 by Santa Clara County's Department of Roads and Airports. During the sample period, vehicle trips ranged from 6 to 25 vehicle trips per hour and 88 to 128 vehicle trips daily (averaging 100 on weekdays and 120 on weekends).

An order-of-magnitude estimate of the traffic impacts of the proposed master plan has been made assuming that the growth in traffic will be proportionate to the growth in based aircraft. The number of based aircraft is forecasted to grow from to 90 to 418. If vehicular traffic due to aviation uses increases proportionately to the increase in based aircraft, the number of trips would increase to between 18 to 77 vehicle trips per hour and 272 to 396 vehicle trips daily. This would equate to 12 to 52 more trips per hour, and 184 to 268 per day. This is a potentially significant issue that should be evaluated in detail as part of the environmental documentation process.

The proposed project would not change road access or traffic patterns around the airport, which will minimize the effect on emergency access. The proposed project will not conflict with any alternative transportation policies and would not affect plans for alternative forms of transportation.

Hydrology and Water Quality

Construction of new airport facilities may have short term impacts on water quality and waste water discharge. However, long term impacts will be minimal, since no waste are generated that discharge to surface waters and ground waters.

Construction of the proposed improvements would increase the amount of impervious surface at the airport, thus significantly contributing to storm water runoff. A new detention basin is proposed to accommodate the additional runoff. There is also a proposed on-site sewage treatment plant to treat additional wastewater generated by new restroom facilities and the restaurant in the terminal building.

South County Airport is bordered by Llagas Creek to the west. Land along the Llagas Creek is within the 100-year floodplain. All proposed developments will occur outside of the 100-year floodplain, thus not exposing the new facilities or people to a significant risk involving floodwaters.

Noise Effects

Noise is often described as unwanted or disruptive sound. Because of its routine, everyday occurrence, it is usually perceived as the most significant adverse impact of airport activity. This section will evaluate the noise effects of implementation of the master plan.

A pure sound is measured in terms of: its magnitude, (often thought of as loudness) as indicated on the decibel (dB) scale; its frequency, (or tonal quality) measured in cycles per second (hertz); and its duration or length of time over which it occurs. To measure the noise value of a sound or series of sounds, other factors must also be considered. Airport noise is particularly complex to measure because of the widely varying characteristics of the individual sound events and the intermittent nature of these events' occurrence.

In an attempt to provide a single measure of airport noise impacts, various cumulative noise level metrics have been devised. The metric most commonly used in California is the Community Noise Equivalent Level (CNEL). This measure is similar to the Day-Night Average Sound Level (DNL or L_{dn}) metric used elsewhere in the United States. The results of CNEL calculations are normally depicted by a series of contours representing points of equal noise exposure in 5 dB increments. Key factors involved in calculation CNEL contours are noted to the left.

Integrated Noise Model Inputs

- The number of operations by aircraft type or group.
- The distribution of operations by time of day for each aircraft type.
- The average takeoff profile and standard approach slope used by each aircraft type.
- The amount of noise transmitted by each aircraft type, measured at various distances from the aircraft.
- The runway system configuration and runway lengths.
- Runway utilization distribution by aircraft type and time of day.
- The geometry of common aircraft flight tracks.
- The distribution of operations for each flight track.

In order to minimize noise impacts on the surround area and community, South County Airport policy requires pilots to make all turns after takeoff at or above 1,000 feet elevation, they also prohibit touch and go operations between 7:00 p.m. and 7:00 a.m.

Noise contours were prepared using the FAA's Integrated Noise Model (Version 6.1). The results are presented in Figures D-1, D-2, and D-3. Figure D-1 presents the noise contours for the current (2002) activity level. Noise contours for 2007 and 2022 are presented in Figures D-2 and D-3. The 2022 contours assume that Runway 11-29 has been extended to 5,000 feet. Noise model inputs are presented in Appendix B.

Federal guidelines suggest that all land uses are acceptable outside of the 65 CNEL contour. However, this standard was established with major metropolitan areas in mind. Given the lower ambient noise levels, it is appropriate to consider noise effects outside of the 65 CNEL contour. Given its location in a rural setting with a major noise generator (Highway 101), a 60 CNEL contour has been used.

Currently, all of the 65 CNEL contours fall on airport property or on Highway 101. While most of the 60 CNEL contour falls within airport property or road rights-of-way, portions of this contour extend beyond the airport property to the west and east. This 60 CNEL contour encompasses residential and commercial uses west of Murphy Avenue and east of Highway 101.

Noise contour inputs for 2022 include:

- Activity level increases (described in Chapter 2)
- Increase in the percentage of turboprops and jets using the airport (described in Chapter 2)
- Extension of Runway 11-29 to a length 5,000 feet (described in Chapter 3)

Under the forecast assumptions listed above, the 2022 noise contours expand beyond the current and five-year forecasts. The 2022 65 CNEL contour encompasses an area similar to the current 60 CNEL contour. The 60 CNEL contour will extend about 4,500 feet north of the airport and about 3,500 feet south of the airport. The noise impacts of the airport will need to be studied as part of the environmental documentation process. The noise contribution of Highway 101 should be included in the analysis.

Air Quality

The volume of aircraft use is forecasted to increase over the 20-year planning period. Growth in aircraft use will result in a parallel growth in automobile use. Both of these will cause an incremental increase in air pollutants attributable to airport operations. Construction activities will also create short-term increases in air pollution. Basic modeling is appropriate to quantify air quality impacts of Master Plan projects. Modeling of hot spots does not appear warranted.

Population and Housing

The addition of fixed base operators to South County Airport proposed by this master plan could indirectly induce growth in the area by providing additional employment. Estimates of employment generation should be made as part of the environmental documentation.

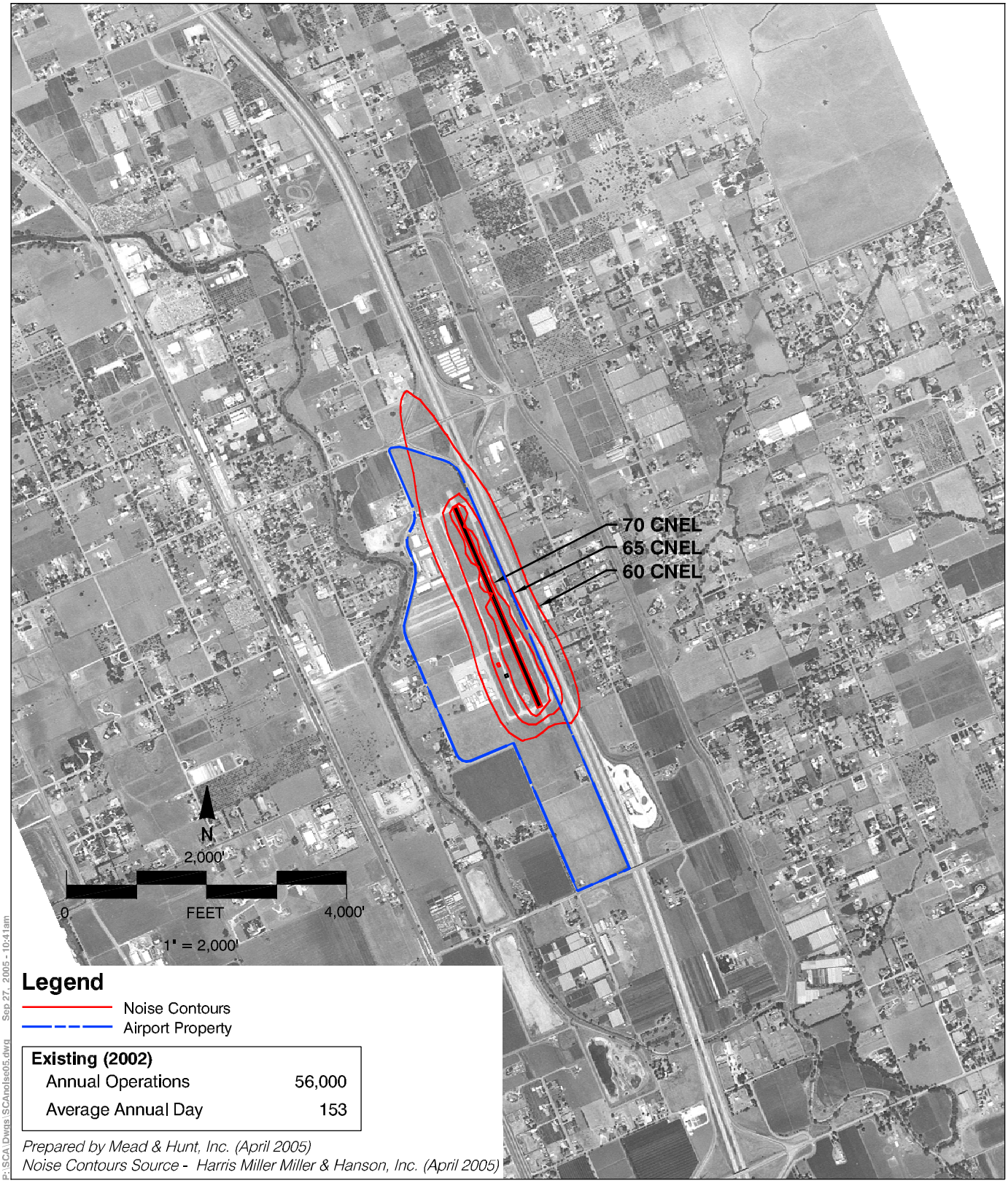


Figure D-1

Existing Noise Contours - 2002

South County Airport

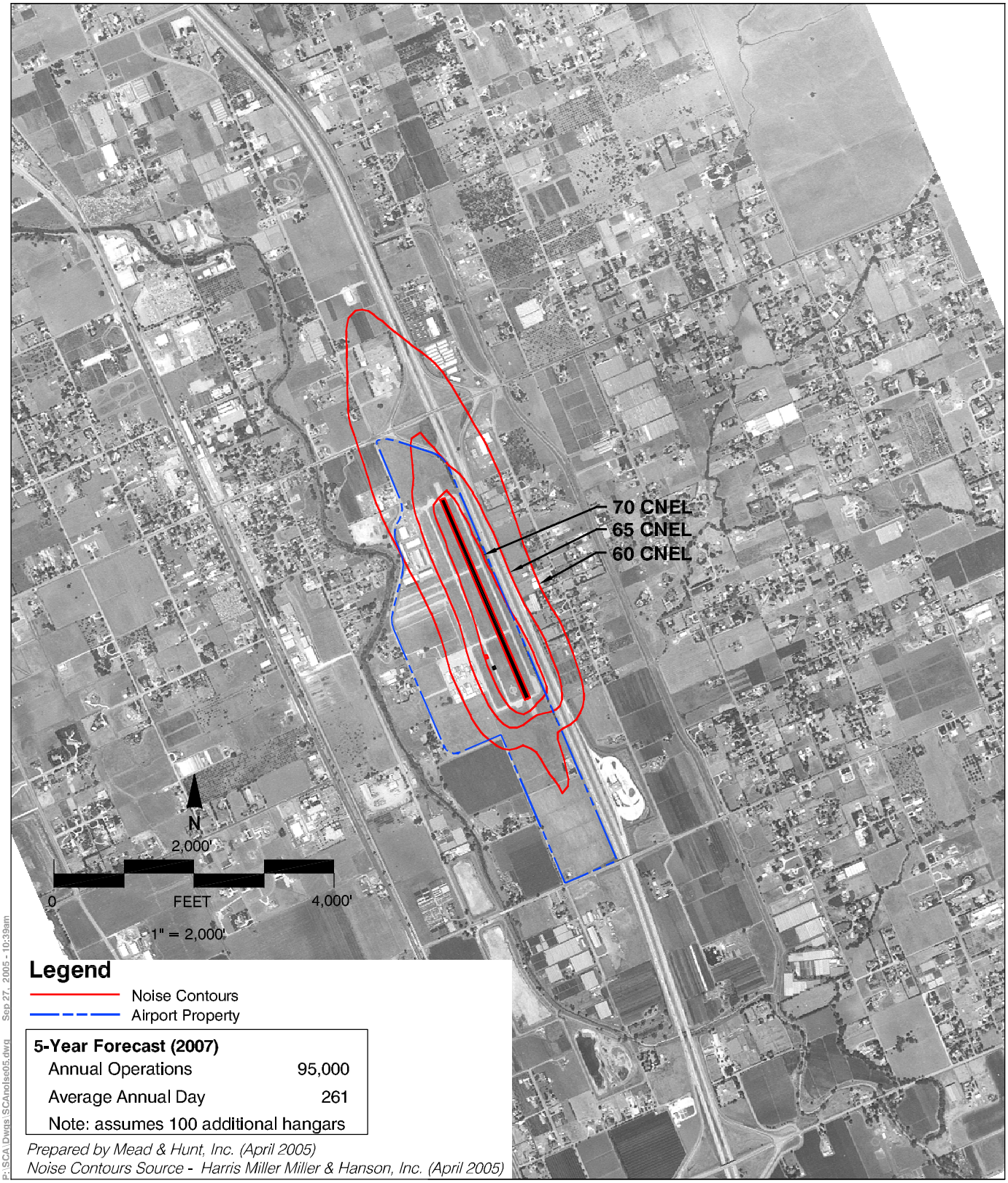


Figure D-2

Future Noise Contours - 2007

South County Airport

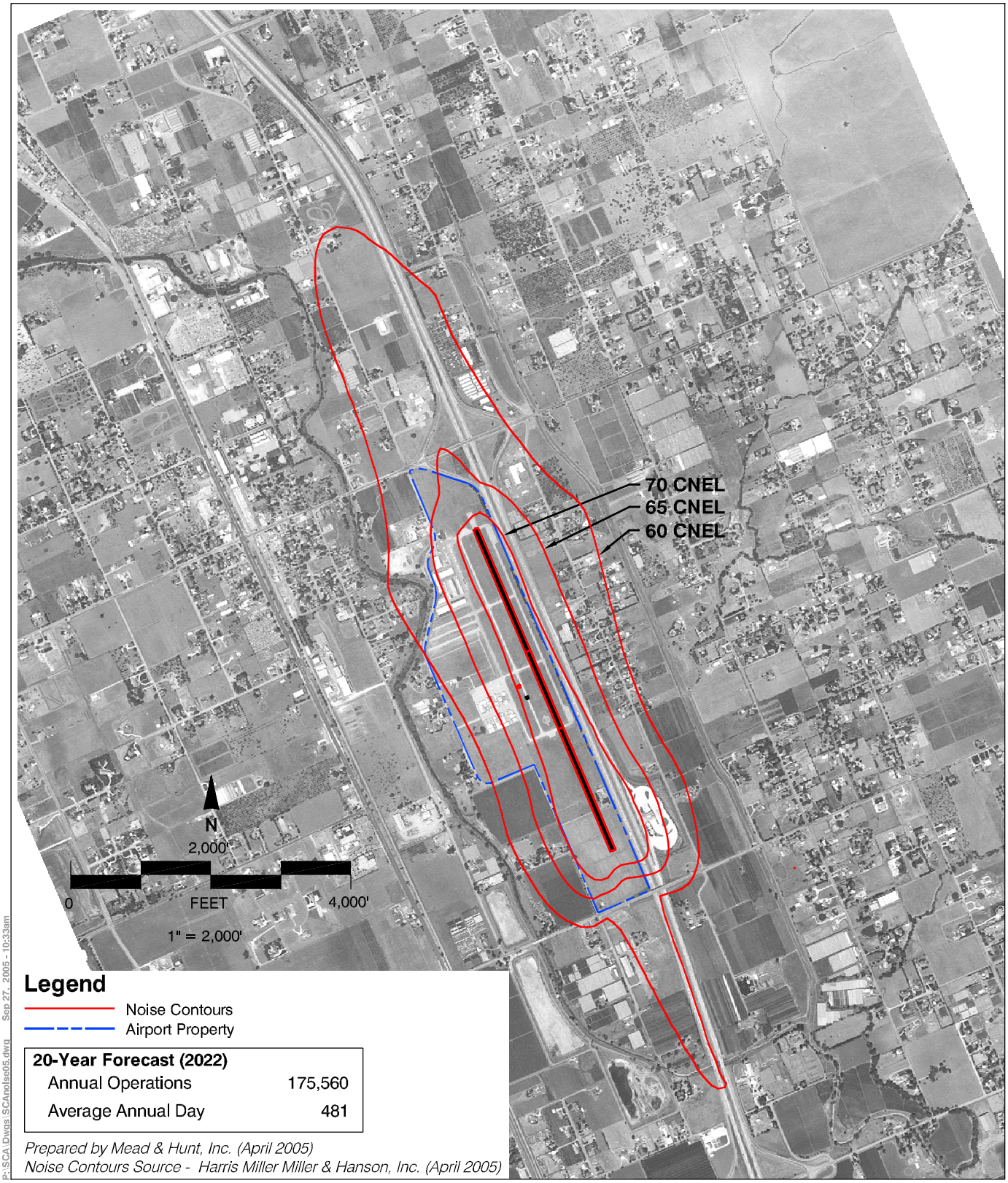


Figure D-3

Future Noise Contours - 2022

South County Airport

Public Services

South County Airport receives fire protection services from the California Division of Forestry (CDF). The average response time for fire protection to arrive at the airport is 4.5 minutes. The Santa Clara County Fire Marshal indicated that there is an existing deficiency of water supply and water pressure for the airport. Additional water storage is proposed to be developed. Due to the reported deficiency of water supply and water pressure for South County Airport, the proposed terminal building will require installation of a fire sprinkler system.

To the extent that the new fixed base operators create employment, there could be an incremental increase in public school students. The forecast increase in use of the airport would also incrementally increase the need for maintenance on adjacent public roads. The significance of these effects should be studied in the environmental documentation.

Hydrology

The majority of South County Airport is located outside of the 100-year floodplain. Only the northeastern corner of the airport property, north of the entrance and east of the existing FBOs, is designated as within the 100-year shallow flood zone with an average depth of inundation at 1 foot. Proposed future commercial and transit development may occur within this designated flood hazard area.

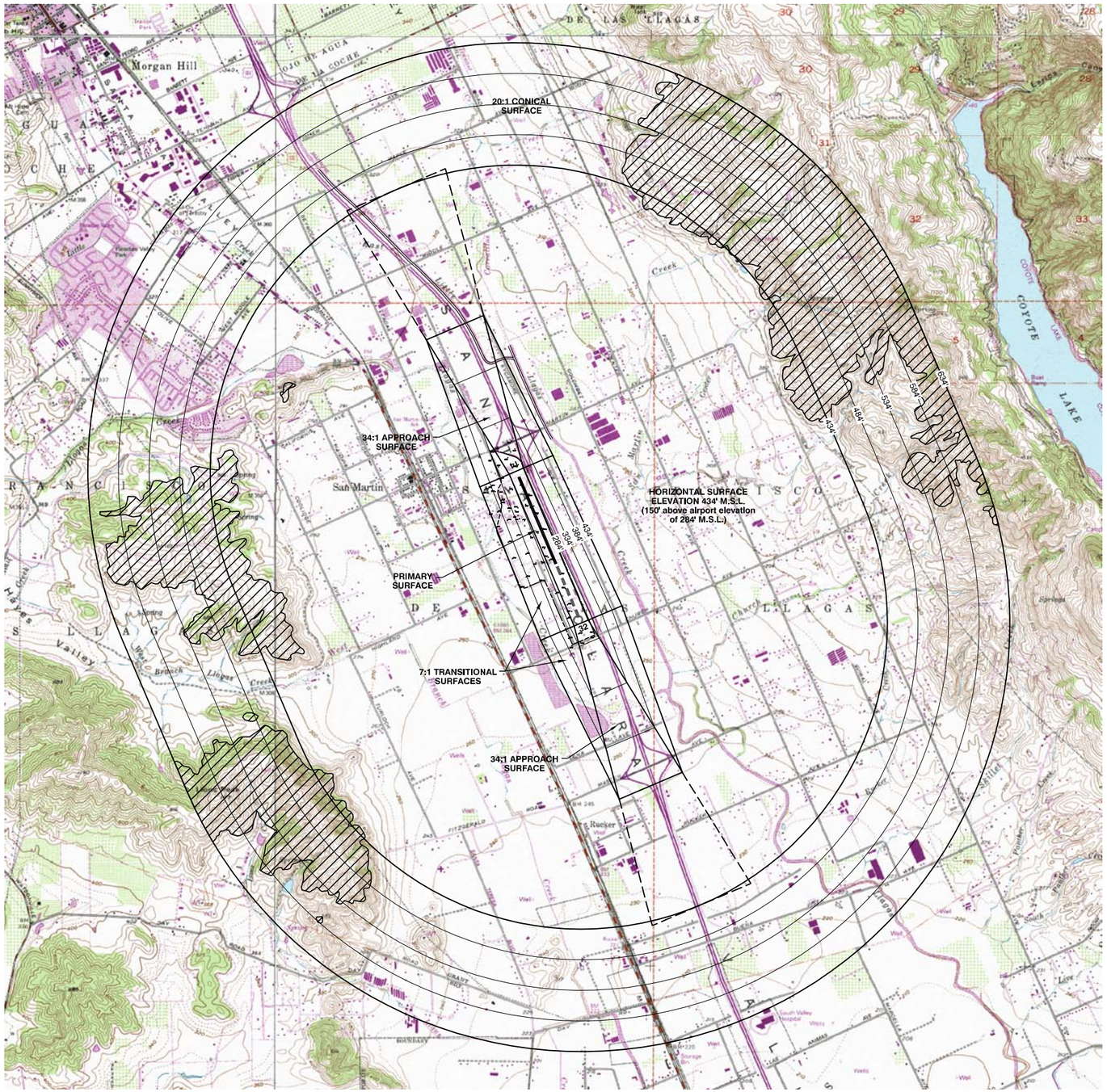
There are no known mudslide hazards affecting South County Airport. Tsunamis are unlikely to reach the project site since it is located away from coastal areas.

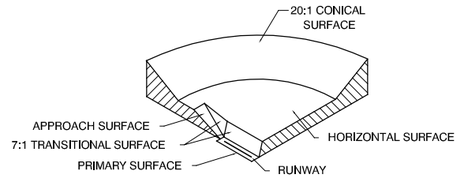
Environmental Review

Environmental review under the provisions of the California Environmental Quality Act will be required before this plan can be adopted. Based upon the available information, it is anticipated that a Negative Declaration would be needed to adopt this airport master plan.

As construction of the proposed runway extension is proposed for the near term, it is anticipated that an Environmental Assessment will need to be prepared under the provisions of the National Environmental Policy Act. While it is possible that an Environmental Impact Statement might be needed, the magnitude of project impacts does not seem to warrant this approach. Ultimately this decision will rest with the Federal Aviation Administration.

Airport Plan Drawings





TYPICAL FAR PART 77 SURFACES

NOTES:

All elevations in feet above mean sea level (MSL) and NAVD88
See Approach Surface Detail Sheet (3 of 3) for obstruction data.

SOURCES:

USGS Topographic Maps

NO.	REVISION	SPONSOR	DATE

SOUTH COUNTY AIRPORT
SAN MARTIN, CALIFORNIA

AIRSPACE PLAN

MEAD & HUNT
ENGINEERS ARCHITECTS SCIENTISTS PLANNERS
707 Aviation Blvd., Santa Rosa, California 95403 - (707) 526-5010

DESIGN:	DD	DRAWN:	GJ	DATE:	June 2007	SHEET	3	OF	4

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RUNWAY DATA

			RUNWAY 14-32	
			EXISTING	FUTURE
CRITICAL AIRCRAFT	AIRCRAFT		Beech Baron	Cessna Citation Encore
	WINGSPAN		37.8'	54.1'
	APPROACH SPEED (kts.)		96	< 121
	MAX. TAKEOFF WT. (lbs.)		5,500	16,630
PHYSICAL LENGTH AND WIDTH			3,100' X 75'	5,000' X 100'
VERTICAL LINE OF SIGHT PROVIDED			Yes	No Change
WIND COVERAGE			99.45%	99.69%
RUNWAY END COORDINATES (a)	Approach End of Runway 14	Latitude	37° 05' 07.73" N	No Change
		Longitude	121° 35' 56.21" W	No Change
	Approach End of Runway 32	Latitude	37° 04' 39.68" N	37° 04' 22.49" N
		Longitude	121° 35' 40.78" W	121° 35' 31.33" W
RUNWAY END ELEVATIONS (a)		14	283.84'	No Change
		32	273.02'	264.0' (est.)
RUNWAY TOUCH DOWN ZONE ELEVATION			283.84'	No Change
EFFECTIVE GRADIENT (%)			0.35	0.40
MAXIMUM GRADIENT (%)			0.37	0.46 est.
RUNWAY/TAXIWAY SURFACE TYPE			Asphalt/Asphalt	No Change
PAVEMENT STRENGTH (1,000#) - S/D/DT			12.5/-/-	12.5/35/-
RUNWAY MARKING			Basic	Nonprecision
RUNWAY LIGHTING			MIRL	No Change
NAVIGATION AIDS	Approach End of Runway	14	PAPI-2L	GPS/PAPI-P2L
		32	GPS/PAPI-P2L	No Change
VISUAL AIDS	Approach End of Runway	14	None	REILS
		32	None	REILS
APPROACH TYPE (FAR Part 77 Category)	Approach End of Runway	14	Visual [A(V)]	Nonprecision[A(NP)]
		32	Nonprecision[A(NP)]	No Change
APPROACH VISIBILITY (Minimums)	Approach End of Runway	14	Visual	1-1/4 Mile
		32	1 1/4 Mile	No Change
APPROACH SLOPE (Required/Clear)	Approach End of Runway	14	20:1/20>:1	34:1/34:1
		32	34:1/34>:1	No Change
RUNWAY SAFETY AREA (Width) (b)			120'	150'
RUNWAY SAFETY AREA (Length Beyond Runway End) (b)		14	240'	300'
		32	240'	300'
OBSTACLE FREE ZONE (Width) (b)			250'	400'
OBSTACLE FREE ZONE (Length Beyond Runway End) (b)		14	200'	No Change
		32	200'	No Change
OBJECT FREE AREA (Width) (b)			250'	500'
OBJECT FREE AREA (Length Beyond Runway End) (b)		14	240'	300'
		32	240'	300'
HOLD LINES (Distance from Rwy to Centerline)			125'	200'

BUILDING AND FACILITY LEGEND *

		TOP ELEVATION
1	Airport Office (Trailer) - To Be Removed	289.22'
2	Airport Maintenance Sheds - To Be Removed	288.98'
3	Airport Electical Vault	288.38'
4	Water Well	
5	Airport Water Tank and Pump #1	301' (est.)
6	Airport Water Tank and Pump #2 (Future)	301' (est.)
7	Air Traffic Control Tower (Future)	330' (est.)
8	Airport Terminal (Future)	295' (est.)
9	Airport Maintenance Building (Future)	287' (est.)
10	Fixed Base Operator (FBO) Building	295.85'
11	FBO - Fuel Island	295.68'
12	FBO - Executive Hangar	295.85'
13	FBO - Executive Hangar	294.49'
14	FBO - Executive Hangar	297.00'
15	FBO - Box Hangars	295.29'
16	FBO - Box Hangars	293.01'
17	FBO - Box Hangars	294.93'
18	FBO - Box Hangars	300.32'
19	FBO - Box Hangars	296.25'
20	FBO - Box Hangars	301.08'
21	FBO - T-Hangars	294.09'
22	FBO - Portable Hangars	292.53'
23	County - Box Hangars	304' (est.)
24	County - Box Hangars	307" (est.)
25	County - T-Hangars	300' (est.)
26	County - T-Hangars	294' (est.)
27	County - T-Hangars	300' (est.)
28	County - Box Hangars (Future)	296' (est.)
29	County - Box Hangars (Future)	296' (est.)

* Source: Photogrammetric survey conducted by Cartwright Aerial Surveys, Inc. (2001). Estimates are based on surveyed ground elevations plus estimated height of facility. Elevations in mean sea level (MSL). Vertical datum is NAVD88.

AIRPORT DATA

		EXISTING	FUTURE
AIRPORT REFERENCE CODE		B-I (Small)	B-II
AIRPORT REFERENCE POINT (a)	Latitude	37° 04' 53.70" N	37° 04' 45.11" N
	Longitude	121° 35' 48.49" W	121° 35' 43.77" W
AIRPORT ELEVATION (Above Mean Sea Level)		283.84'	No Change
MEAN MAX. TEMP. (Hottest Month) (a)		82.1° (July)	No Change
AIRPORT AND TERMINAL NAVIGATIONAL AIDS		NDB, Beacon,VOR	No Change
GPS APPROACH ESTABLISHED		Rwy 32	Rwy 14 and 32
AIRPORT ACREAGE	Fee Simple	179	511
	Avigation Easement	None	No Change
AIRCRAFT PARKING SPACES	Tiedowns	52	85
	Hangar Units	155	333

ALP NOTES

(a) Data Source:
Airport Coordinates - AirNav.com (March 2005). Coordinates are estimated and horizontal datum is NAD83. Future coordinates for Runway 32 are estimated.

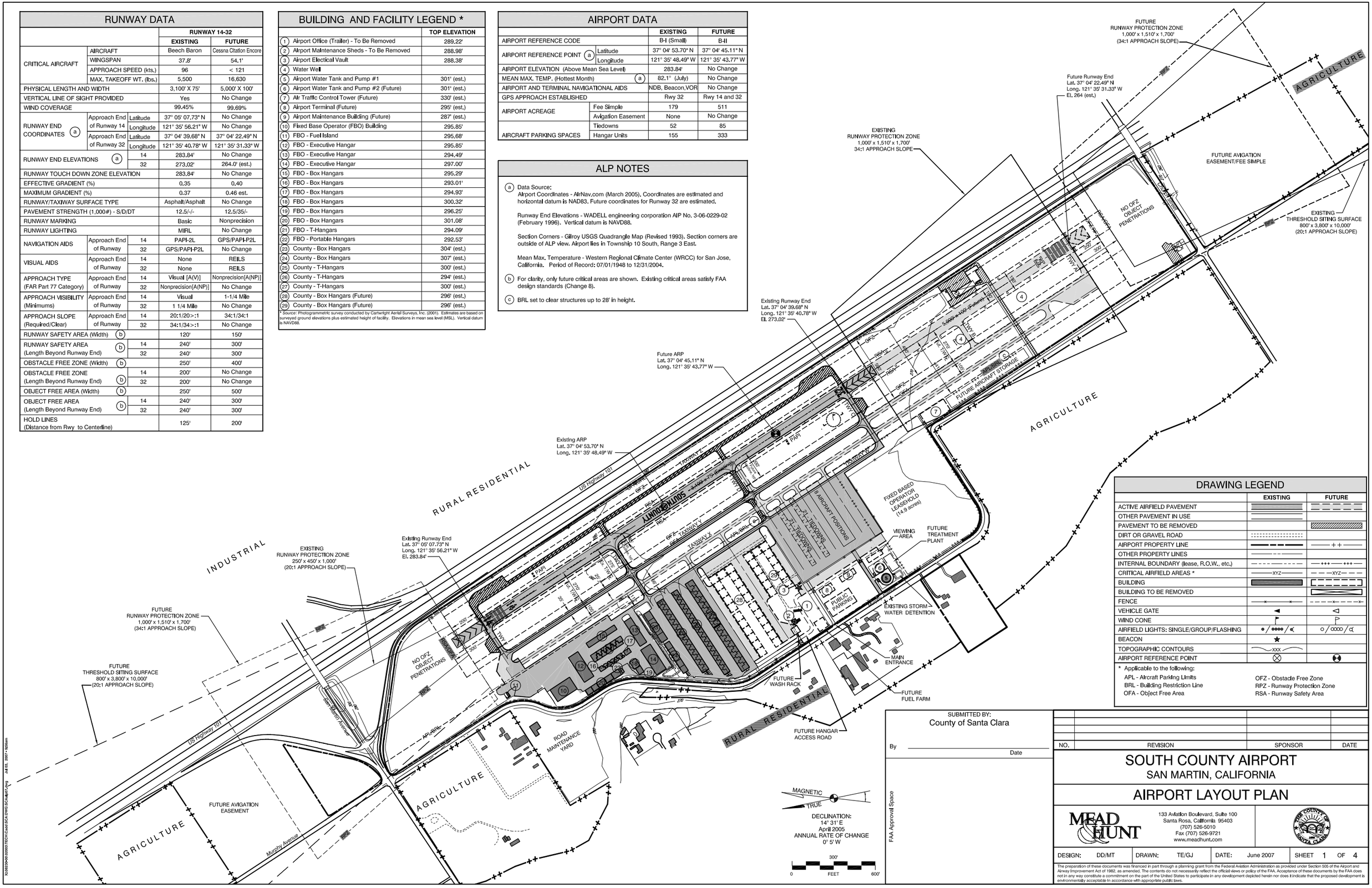
Runway End Elevations - WADELL engineering corporation AIP No. 3-06-0229-02 (February 1996). Vertical datum is NAVD88.

Section Corners - Gilroy USGS Quadrangle Map (Revised 1993). Section corners are outside of ALP view. Airport lies in Township 10 South, Range 3 East.

Mean Max. Temperature - Western Regional Climate Center (WRCC) for San Jose, California. Period of Record: 07/01/1948 to 12/31/2004.

(b) For clarity, only future critical areas are shown. Existing critical areas satisfy FAA design standards (Change 8).

(c) BRL set to clear structures up to 28' in height.



DRAWING LEGEND

	EXISTING	FUTURE
ACTIVE AIRFIELD PAVEMENT		
OTHER PAVEMENT IN USE		
PAVEMENT TO BE REMOVED		
DIRT OR GRAVEL ROAD		
AIRPORT PROPERTY LINE		
OTHER PROPERTY LINES		
INTERNAL BOUNDARY (lease, R.O.W., etc.)		
CRITICAL AIRFIELD AREAS *	XYZ	XYZ
BUILDING		
BUILDING TO BE REMOVED		
FENCE		
VEHICLE GATE		
WIND CONE		
AIRFIELD LIGHTS: SINGLE/GROUP/FLASHING		
BEACON		
TOPOGRAPHIC CONTOURS	XXX	
AIRPORT REFERENCE POINT		

* Applicable to the following:
APL - Aircraft Parking Limits
BRL - Building Restriction Line
OFA - Object Free Area
OFZ - Obstacle Free Zone
RPZ - Runway Protection Zone
RSA - Runway Safety Area

SUBMITTED BY:
County of Santa Clara

By _____ Date _____

FAA Approval Space

NO.	REVISION	SPONSOR	DATE

SOUTH COUNTY AIRPORT
SAN MARTIN, CALIFORNIA

AIRPORT LAYOUT PLAN

MEAD & HUNT
133 Aviation Boulevard, Suite 100
Santa Rosa, California 95403
(707) 526-5010
Fax (707) 526-9721
www.meadhunt.com

DESIGN:	DD/MT	DRAWN:	TE/GJ	DATE:	June 2007	SHEET	1	OF	4

The preparation of these documents was financed in part through a planning grant from the Federal Aviation Administration as provided under Section 505 of the Airport and Airway Improvement Act of 1982, as amended. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of these documents by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted herein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws.

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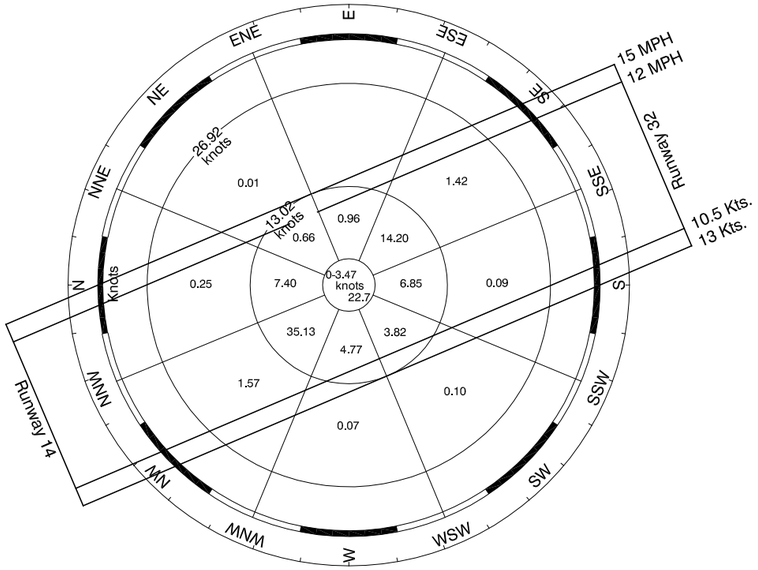
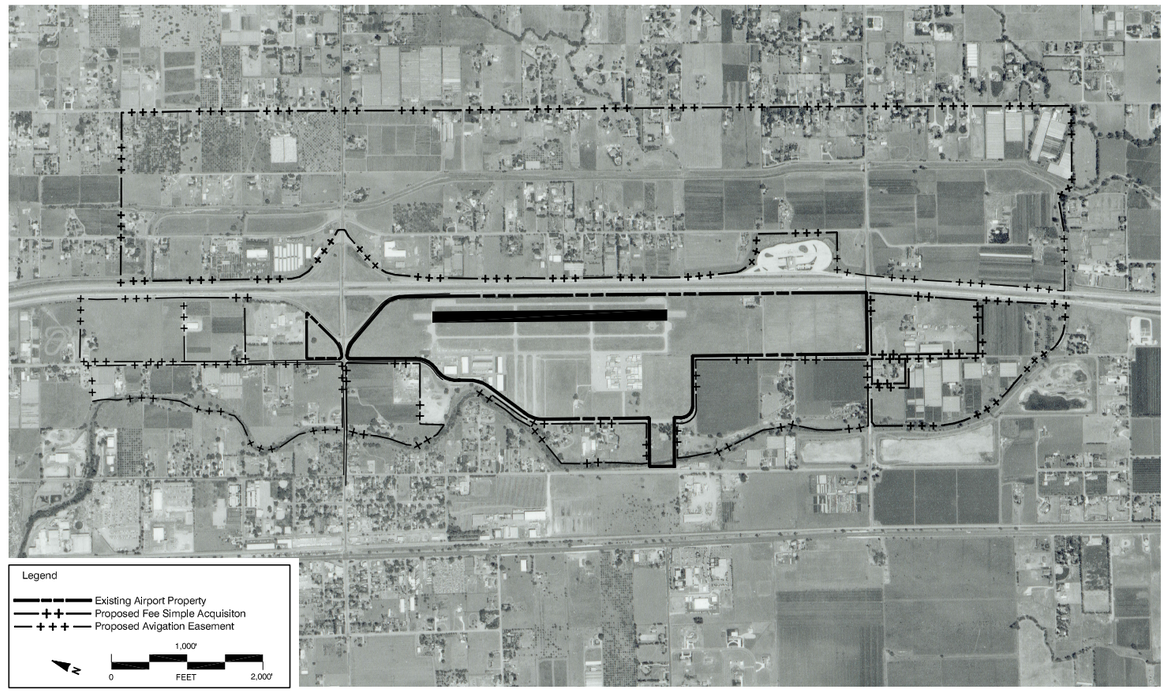


ALL WEATHER WIND ROSE

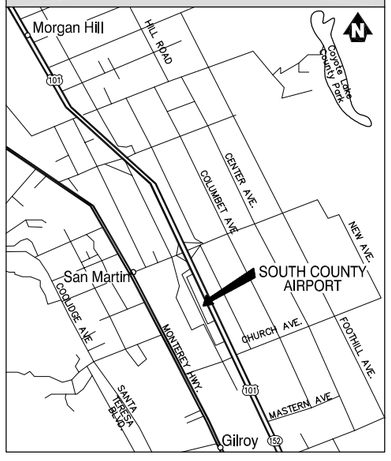
WIND COVERAGE		
Runway	12 M.P.H. (10.5 Knots)	15 M.P.H. (13 Knots)
14-32	99.45%	99.69%

SOURCE: RECORDS OF SAN JOSE WEATHER STATION, DEPARTMENT OF PUBLIC WORKS, COOPERATIVE STATION OF THE U.S. WEATHER BUREAU, 1937-1947.

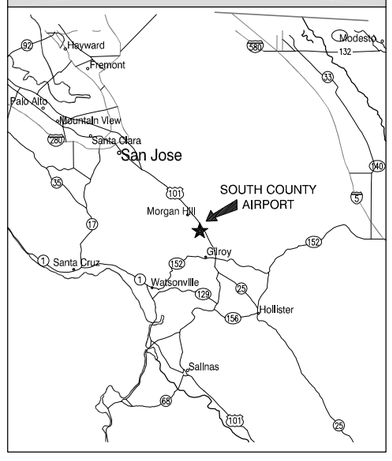
PROPOSED PROPERTY ACQUISITION



VICINITY MAP



LOCATION MAP



TAXIWAY DATA

EXIT TAXIWAYS		DESIGN GROUP		WIDTH		SURFACE TYPE		RWY CL. to TWY CL.		TAXIWAY SAFETY AREA WIDTH		TAXIWAY OBJECT FREE AREA WIDTH		TWY. CL. to FIXED or MOVEABLE OBJECT		TAXIWAY WINGTIP CLEARANCE		NOTES
EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	
-	A	-	B-II	-	35'	-	Asphalt	-	-	-	>79'	-	131'	-	>66'	-	26'	
-	B	-	B-II	-	35'	-	Asphalt	-	-	-	>79'	-	131'	-	>66'	-	26'	
A	C	B-II	No Change	35'	No Change	Asphalt	No Change	-	-	>79'	No Change	131'	No Change	>66'	No Change	26'	No Change	
B	D	B-I Small	B-II	25'	35'	Asphalt	No Change	-	-	>79'	No Change	131'	No Change	>66'	No Change	26'	No Change	
C	E	B-I Small	B-II	25'	35'	Asphalt	No Change	-	-	>79'	No Change	131'	No Change	>66'	No Change	26'	No Change	
D	F	B-I Small	B-II	25'/35'	35'	Asphalt	No Change	-	-	>79'	No Change	131'	No Change	>66'	No Change	26'	No Change	
PARALLEL TAXIWAYS																		
A	Y	B-I Small	B-II	25'	35'	Asphalt	No Change	275'	270'	>79'	No Change	131'	No Change	>66'	No Change	26'	No Change	
E	W	B-I Small	No Change	25'	No Change	Asphalt	No Change	488'	No Change	>49'	No Change	>89'	No Change	45'	No Change	15'	No Change	Taxiway/taxilane primarily used by small aircraft.
-	X	-	B-II	-	35'	-	Asphalt	-	375'	-	>79'	-	131'	-	>66'	-	26'	
F	Z	B-I Small	No Change	25'	No Change	Asphalt	No Change	150'	No Change	>79'	No Change	131'	No Change	>66'	No Change	26'	No Change	Future closure.

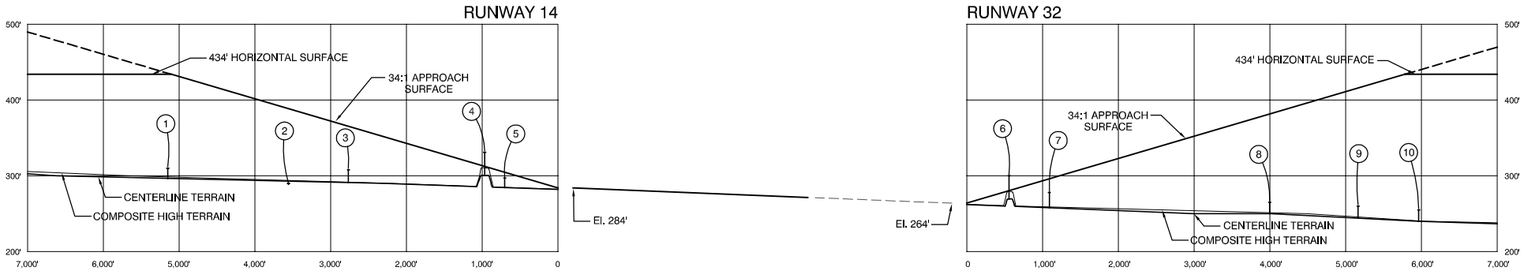
NO.	REVISION	SPONSOR	DATE

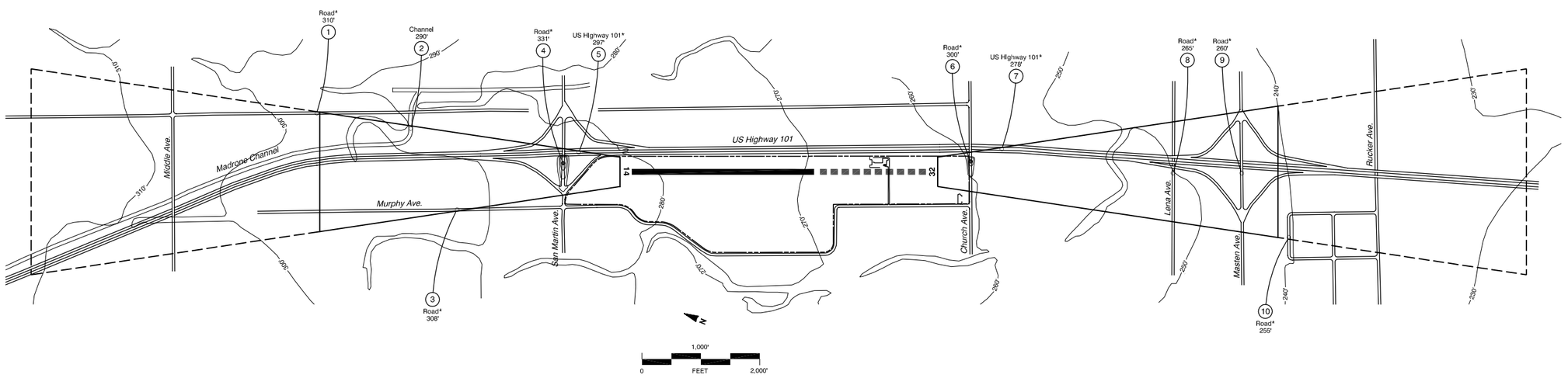
SOUTH COUNTY AIRPORT
SAN MARTIN, CALIFORNIA

AIRPORT LAYOUT PLAN DATA SHEET

MEAD & HUNT
ENGINEERS ARCHITECTS SCIENTISTS PLANNERS
707 Aviation Blvd., Santa Rosa, California 95403 • (707) 526-5010

DESIGN: DD	DRAWN: TE	DATE: June 2007	SHEET 2 OF 4





LEGEND

- ● = Object penetrates Indicated surface
- ○ = Object falls outside or below indicated surface
- * = 15 feet vertical clearance added to road elevations

NOTES:

All elevations in feet above mean sea level (MSL) and NAVD88

SOURCES:

USGS Topographic Maps

NO.	REVISION	SPONSOR	DATE

SOUTH COUNTY AIRPORT
SAN MARTIN, CALIFORNIA

APPROACH SURFACE DETAIL

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DESIGN:	DD	DRAWN:	GJ	DATE:	June 2007	SHEET	4	OF	4

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